PP17/2019-1

3935 Great Ocean Road JOHANNA

PC: 352134 V/F: 10189/335

Development of Dwelling and Agricultural Building and Creation of Access to RDZ1

Anchor Homes

Officer - Ian Williams

EXHIBITION FILE

Submissions to this planning application will be accepted until a decision is made on the application.

If you would like to make a submission relating to a planning permit application, you must do so in writing to the Planning Department

Colac Otway SHIRE

Planning Enquiries
Phone: (03) 5232 9400
Web: www.colacotway.vic.gov.au

Clear Form

Office Use Only

Application No.: Date Lodged: / /

Application for a **Planning Permit**

If you need help to complete this form, read MORE INFORMATION at the end of this form.

⚠ Any material submitted with this application, including plans and personal information, will be made available for public viewing, including electronically, and copies may be made for interested parties for the purpose of enabling consideration and review as part of a planning process under the *Planning and Environment Act 1987*. If you have any questions, please contact Council's planning department.

⚠ **Questions marked with an asterisk (*) must be completed.**

⚠ **If the space provided on the form is insufficient, attach a separate sheet.**

i Click for further information.

The Land i

Address of the land. Complete the Street Address and one of the Formal Land Descriptions.

Street Address *

Unit No.: | St. No.: 3935 | St. Name: Great Ocean Road

Suburb/Locality: Johanna | Postcode: 3238

Formal Land Description *
Complete either A or B.

⚠ This information can be found on the certificate of title.

If this application relates to more than one address, attach a separate sheet setting out any additional property details.

A Lot No.: 3 ○ Lodged Plan ○ Title Plan ◉ Plan of Subdivision No.: 330301U

OR

B Crown Allotment No.: | Section No.:

Parish/Township Name:

The Proposal

⚠ You must give full details of your proposal and attach the information required to assess the application. Insufficient or unclear information will delay your application.

i **For what use, development or other matter do you require a permit? ***

New dwelling and shed - refer Planning Report attached

Application is also included for creation of access to a road in a Road Zone, Category 1.

☑ Provide additional information about the proposal, including: plans and elevations; any information required by the planning scheme, requested by Council or outlined in a Council planning permit checklist; and if required, a description of the likely effect of the proposal.

i **Estimated cost of any development for which the permit is required ***

Cost $ 285000

⚠ You may be required to verify this estimate. Insert '0' if no development is proposed.

Existing Conditions

Describe how the land is used and developed now *

For example, vacant, three dwellings, medical centre with two practitioners, licensed restaurant with 80 seats, grazing.

Pasture, Forest, Vacant

☑ Provide a plan of the existing conditions. Photos are also helpful.

Title Information

Encumbrances on title *

Does the proposal breach, in any way, an encumbrance on title such as a restrictrive covenant, section 173 agreement or other obligation such as an easement or building envelope?

○ Yes (If 'yes' contact Council for advice on how to proceed before continuing with this application.)

◉ No

○ Not applicable (no such encumbrance applies).

☑ Provide a full, current copy of the title for each individual parcel of land forming the subject site.
The title includes: the covering 'register search statement', the title diagram and the associated title documents, known as 'instruments', for example, restrictive covenants.

Applicant and Owner Details

Provide details of the applicant and the owner of the land.

Applicant *

The person who wants the permit.

Name:
Title:
First Name: Heather
Surname: Raikes
Organisation (if applicable): Anchor Homes
Postal Address:
If it is a P.O. Box, enter the details here:
Unit No.:
St. No.:
St. Name: PO Box 210
Suburb/Locality: SALE
State: VIC
Postcode: 3850

Please provide at least one contact phone number *

Contact information for applicant OR contact person below
Business phone: 5145 7110
Email: heather.raikes@anchorhomes.com.au
Mobile phone:
Fax:

Where the preferred contact person for the application is different from the applicant, provide the details of that person.

Contact person's details*
Same as applicant ☐
Name:
Title:
First Name:
Surname:
Organisation (if applicable):
Postal Address:
If it is a P.O. Box, enter the details here:
Unit No.:
St. No.:
St. Name:
Suburb/Locality:
State:
Postcode:

Owner *

The person or organisation who owns the land

Where the owner is different from the applicant, provide the details of that person or organisation.

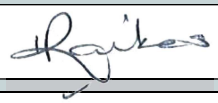
Same as applicant ☐
Name:
Title:
First Name: Ben Hoodless
Surname: Penny Heard
Organisation (if applicable):
Postal Address:
If it is a P.O. Box, enter the details here:
Unit No.:
St. No.: 60
St. Name: Andrew Street
Suburb/Locality: WINDSOR
State: VIC
Postcode: 3181
Owner's Signature (Optional):
Date:
day / month / year

Declaration

This form must be signed by the applicant *

Remember it is against the law to provide false or misleading information, which could result in a heavy fine and cancellation of the permit.

I declare that I am the applicant; and that all the information in this application is true and correct; and the owner (if not myself) has been notified of the permit application.

Signature: 

Date: 16.1.2019
day / month / year

Need help with the Application?

General information about the planning process is available at planning.vic.gov.au

Contact Council's planning department to discuss the specific requirements for this application and obtain a planning permit checklist. Insufficient or unclear information may delay your application.

Has there been a pre-application meeting with a council planning officer?

(•) No ( ) Yes

If 'Yes', with whom?:

Date: day / month / year

Checklist

Have you:

- [x] Filled in the form completely?
- [x] Paid or included the application fee? — Most applications require a fee to be paid. Contact Council to determine the appropriate fee.
- [x] Provided all necessary supporting information and documents?
  - [x] A full, current copy of title information for each individual parcel of land forming the subject site.
  - [x] A plan of existing conditions.
  - [x] Plans showing the layout and details of the proposal.
  - [x] Any information required by the planning scheme, requested by council or outlined in a council planning permit checklist.
  - [x] If required, a description of the likely effect of the proposal (for example, traffic, noise, environmental impacts).
- [x] Completed the relevant council planning permit checklist?
- [x] Signed the declaration above?

Lodgement

Lodge the completed and signed form, the fee and all documents with:

Colac Otway Shire
PO Box 283
Colac VIC 3250

2-6 Rae Street
Colac VIC 3250

Contact information

Phone: (03) 5232 9400
Email: inq@colacotway.vic.gov.au

Deliver application in person, by post or by electronic lodgement.

anchor homes

Head Office and Display Home
55 Industrial Road, Stratford, VIC 3862

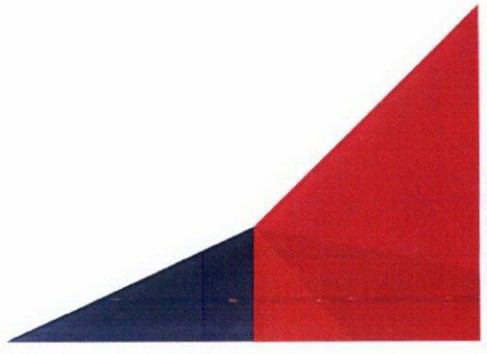
Sales Office and Display Home
1 Jersey Road, Bayswater VIC 3153

P. 03 5145 7110
F. 03 5145 7155
sales@anchorhomes.com.au
anchorhomes.com.au

reduce such risks to an acceptable, or better level and that Council can fully support the proposed development.

SUMMARY

For the above reasons, we conclude that the proposed development responds well to the planning constraints existing and that it is suitable for Council to grant permission as requested and issue Planning Permission for the new dwelling and shed.



Heather Raikes

From: Courtney Broussard
Sent: Monday, 21 January 2019 11:04 AM
To: Heather Raikes
Subject: FW: Lot 3 - 3935 Great Ocean Road, Johanna - New entrance

Hi Heather,

Please see below from Ben Hoodless.

Kind regards,

Courtney Broussard | **Project Consultant**

Office. 03 8736 9520 | **Mobile.** 0436 004 089
Web. www.anchorhomes.com.au | **Email.** courtney@anchorhomes.com.au
Address. 1 Jersey Road, Bayswater VIC 3153

From: HOODLESS, BEN [AG/5020] <ben.hoodless@bayer.com>
Sent: Monday, 21 January 2019 11:01 AM
To: Courtney Broussard <courtney@anchorhomes.com.au>; HOODLESS, BEN [AG/5020] <ben.hoodless@bayer.com>
Cc: Penny Heard <penny.heard@jcpip.com.au>
Subject: RE: Lot 3 - 3935 Great Ocean Road, Johanna - New entrance

Hi Courtney,

I spoke with Peter from the RTA about the process.

Based on that conversation I didn't get the sense there was any formal 'permit' type process.

He mentioned that Colac Otway shire will contact the RTA as part of the process at which time his team make an assessment and revert back to the Colac Otway shire.

He mentioned if the email exchange as forwarded was included in submission and details of his visit to the site he would be able to ensure they gave the greenlight immediately without any delays.

I hope this makes sense? If this is different to what the Colact Otway people are saying I am happy to go back to Peter for more clarification.

Thanks
Ben

From: Courtney Broussard [mailto:courtney@anchorhomes.com.au]
Sent: Monday, January 21, 2019 10:53 AM
To: HOODLESS, BEN [AG/5020] <ben.hoodless@bayer.com>
Cc: Penny Heard <penny.heard@jcpip.com.au>
Subject: RE: Lot 3 - 3935 Great Ocean Road, Johanna - New entrance

Hi Ben,

Perfect, drawings will now be updated with the revised driveway entrance.

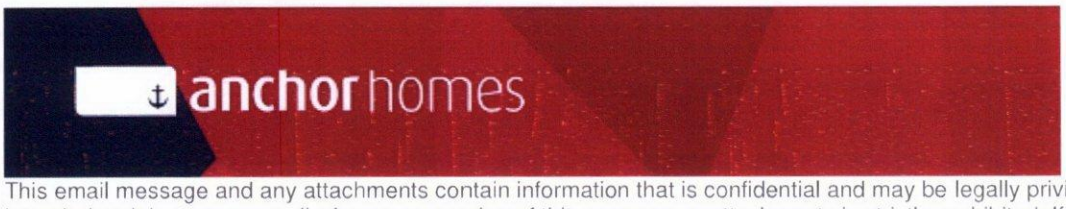
We suggest you obtain all the correct documentation for the permit to change the entrance as soon as possible if you haven't already and get it underway as council will definitely ask for a copy of the applications.

Thank you.

Kind regards,

Courtney Broussard | **Project Consultant**

Office. 03 8736 9520 | **Mobile.** 0436 004 089
Web. www.anchorhomes.com.au | **Email.** courtney@anchorhomes.com.au
Address. 1 Jersey Road, Bayswater VIC 3153



From: HOODLESS, BEN [AG/5020] <ben.hoodless@bayer.com>
Sent: Friday, 18 January 2019 4:49 PM
To: Courtney Broussard <courtney@anchorhomes.com.au>
Cc: Penny Heard <penny.heard@jcpip.com.au>
Subject: FW: Lot 3 - 3935 Great Ocean Road, Johanna - New entrance

Hi Courtney,

Please find attached other photos from Peter.

I also noticed the photo's have GPS co-ordinates if you want to pinpoint exactly the location of the entry point.

Thanks
Ben

From: Peter Gstrein [mailto:Peter.Gstrein@roads.vic.gov.au]
Sent: Friday, January 18, 2019 12:27 PM
To: HOODLESS, BEN [AG/5020] <ben.hoodless@bayer.com>
Subject: RE: Lot 3 - 3935 Great Ocean Road, Johanna - New entrance

Should have resized them in the first instance, Ben. Sorry.

Regards,

Peter Gstrein
Senior Statutory Planning Officer

regional roads victoria

South Western Region
29 Jamieson Street Warrnambool
T 03 5561 9214
M 0408 317 254
E peter.gstrein@roads.vic.gov.au
regionalroads.vic.gov.au

I acknowledge the Traditional Aboriginal Owners of Country throughout Victoria and pay my respect to Elders past and present and to the ongoing living culture of Aboriginal people.
Facebook | VicTraffic | LinkedIn

From: HOODLESS, BEN [AG/5020] [mailto:ben.hoodless@bayer.com]
Sent: Thursday, 17 January 2019 4:35 PM
To: Peter Gstrein <Peter.Gstrein@roads.vic.gov.au>; HOODLESS, BEN [AG/5020] <ben.hoodless@bayer.com>
Subject: RE: Lot 3 - 3935 Great Ocean Road, Johanna - New entrance

Hi Peter,

I haven't yet received the other photos? Not sure how big the file was?

BH

From: Peter Gstrein [mailto:Peter.Gstrein@roads.vic.gov.au]
Sent: Thursday, January 17, 2019 1:51 PM
To: HOODLESS, BEN [AG/5020] <ben.hoodless@bayer.com>
Subject: RE: Lot 3 - 3935 Great Ocean Road, Johanna - New entrance

Original email was sent to Bayer address, Ben.
Tried sending to the Yahoo address but came back with a "content to big" message. Perhaps that was the initial problem.
So, here's the text and one photo:

G'day Ben.

I had a slightly different idea.

With the access point between the 60km advisory sign and the nearest white post to the south, as per the red line on "Position", you'd be able to sit within the property - where the yellow outline is - and see to the north and south a fair distance.
"Nth sight from prop" is taken from the road side at the red line, while "Sth sight from prop" is taken from under the stand of trees further south, but in a direct line from the yellow outline.
Gee, I hope that makes sense!

I'll send the remaining photo separately.

Regards,

Peter Gstrein
Senior Statutory Planning Officer

regional roads victoria

South Western Region
29 Jamieson Street Warrnambool
T 03 5561 9214
M 0408 317 254
E peter.gstrein@roads.vic.gov.au
regionalroads.vic.gov.au

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Facebook | VicTraffic | LinkedIn

From: HOODLESS, BEN [AG/5020] [mailto:ben.hoodless@bayer.com]
Sent: Thursday, 17 January 2019 12:31 PM
To: Peter Gstrein <Peter.Gstrein@roads.vic.gov.au>; HOODLESS, BEN [AG/5020] <ben.hoodless@bayer.com>
Cc: Penny Heard <penny.heard@jcpip.com.au>
Subject: RE: Lot 3 - 3935 Great Ocean Road, Johanna - New entrance

Hi Peter,

I still haven't received the email. Can you please try and resend or send to an alternate email address if that hasn't worked.

bennyhoodless@yahoo.com.au

Thanks
Ben

From: HOODLESS, BEN [AG/5020]
Sent: Friday, January 11, 2019 4:19 PM
To: Peter Gstrein <Peter.Gstrein@roads.vic.gov.au>; HOODLESS, BEN [AG/5020] <ben.hoodless@bayer.com>
Cc: Penny Heard <penny.heard@jcpip.com.au>
Subject: Re: Lot 3 - 3935 Great Ocean Road, Johanna - New entrance

Hi Peter,

I checked my emails and for some reason could not find your response from yesterday. Could you possibly resend?

Thanks

Ben Hoodless
+61427374713

On 10 Jan 2019, at 1:38 pm, HOODLESS, BEN [AG/5020] <ben.hoodless@monsanto.com> wrote:

> Hi Peter,
>
> Thanks for your time to visit the site yesterday and discuss the entrance for Lot 3, 3935 Great Ocean Road. Please confirm that you are supportive of us moving forward with a new entrance in the general location originally proposed in my initial email on 22/10/2018.

As discussed with the following provisions:

1. The new entrance has a gate which is set back considerably from the road allowing the driver to exit the gate and wait for traffic from both north and southerly directions to clear before entering the GOR and get the best possible view of traffic coming from the southerly direction.
2. The new entrance is on the northern side (lavers hill side) of the 60km/h sign allowing for sufficient distance to see traffic coming from Apollo Bay direction (as per photo attached).

Please let me know if anything else I missed.

Thanks
Ben

From: Peter Gstrein [mailto:Peter.Gstrein@roads.vic.gov.au]
Sent: Friday, December 14, 2018 8:48 AM
To: HOODLESS, BEN [AG/5020] <ben.hoodless@bayer.com>
Subject: RE: Lot 3 - 3935 Great Ocean Road, Johanna - New entrance

I'm going to be down that way on Jan. 9 for another matter, Ben. Is that too late for me to do a site inspection and get back to you?

Regards,

Peter Gstrein
Senior Statutory Planning Officer
<image001.png>
South Western Region
29 Jamieson Street Warrnambool
T 03 5561 9214
M 0408 317 254
E peter.gstrein@roads.vic.gov.au
regionalroads.vic.gov.au

I acknowledge the Traditional Aboriginal Owners of Country throughout Victoria and pay my respect to Elders past and present and to the ongoing living culture of Aboriginal people.
Facebook | VicTraffic | LinkedIn

From: HOODLESS, BEN [AG/5020] [mailto:ben.hoodless@bayer.com]
Sent: Wednesday, 12 December 2018 1:21 PM
To: Peter Gstrein <Peter.Gstrein@roads.vic.gov.au>; HOODLESS, BEN [AG/5020] <ben.hoodless@bayer.com>
Subject: RE: Lot 3 - 3935 Great Ocean Road, Johanna - New entrance

Sorry with attachment

From: HOODLESS, BEN [AG/5020]
Sent: Wednesday, December 12, 2018 1:19 PM
To: Peter.Gstrein@roads.vic.gov.au; HOODLESS, BEN [AG/5020] <ben.hoodless@bayer.com>
Subject: RE: Lot 3 - 3935 Great Ocean Road, Johanna - New entrance

Hi Peter,

Thanks for coming back on this and sorry for the slow response.

A couple of subsequent questions.

1. Regarding the proposal below I think we could improve the visibility to the north if the trees on the curve in the road were removed which are on our property could this change your perspective? (see attached map)

The challenge we face is that the earthworks required to build an internal road are quite substantial both the surveyor and the consultant doing the fire risk / access assessment independently suggested our original location as a suitable access point for fire and practicality.

2. In the south west corner of the property there is another access point directly opposite the google maps street location of 3935 great ocean road (see on attached map). Given this section of road is an entrance point for a few properties in this section of road could we use this as an entrance point to the property.

Appreciate your thoughts on this.

Thanks
Ben

From: Peter.Gstrein@roads.vic.gov.au [mailto:Peter.Gstrein@roads.vic.gov.au]
Sent: Wednesday, October 24, 2018 11:50 AM
To: HOODLESS, BEN [AG/5020] <ben.hoodless@bayer.com>
Subject: Re: Lot 3 - 3935 Great Ocean Road, Johanna - New entrance

Hi Ben.

I've done a desk-top assessment, using our video road-monitoring program. I believe that the proposed access point gives around 150m sight distance to the south, and only 100m to the north, whereas the existing access gives 150m to the south, but 210m (or a little more) to the north.

I fully understand that using the existing access point will increase construction costs for internal roadway, but suggest that it would be the safer option.

Regards,

Peter Gstrein
Senior Statutory Planning Officer

regional roads victoria

South Western Region
29 Jamieson Street Warrnambool
T 03 5561 9214
M 0408 317 254
E peter.gstrein@roads.vic.gov.au
regionalroads.vic.gov.au

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Facebook | VicTraffic | LinkedIn

<image003.gif>"HOODLESS, BEN [AG---22/10/2018 02:37:19 PM---Hi Peter, Your name was passed onto me by the planning group at Colac Otway Shire.

From: "HOODLESS, BEN [AG/5020]" <ben.hoodless@bayer.com>
To: "Peter.Gstrein@roads.vic.gov.au" <Peter.Gstrein@roads.vic.gov.au>
Cc: Penny Heard <penny.heard@jcpip.com.au>
Date: 22/10/2018 02:37 PM
Subject: Lot 3 - 3935 Great Ocean Road, Johanna - New entrance

---

Ext: Business Area:
This email is from an external source. If it is a Business Record remember to file it

Hi Peter,

Your name was passed onto me by the planning group at Colac Otway Shire.

We are currently going through settlement on this property and are looking at creating another entrance to the property from the great ocean road for a future dwelling.

We sought some independent advice from surveyor Tony Jeavons who felt the proposed location for the entrance should provide ample visibility however I wanted to get some thoughts from vic roads before we make the formal submission to planning.

Attached is some information about the proposal. Appreciate your thoughts.

Thanks

<image005.png>

Ben Hoodless
General Manager

Australia and New Zealand
Vegetable Seeds Division
12/600 St Kilda Rd
Melbourne, VIC, 3004
Mobile: +61 427 374 713
Email: ben.hoodless@bayer.com
deruiterseeds.com | seminis.com

WestVic SHEDS & GARAGES
"Strength, Style & Versatility"
A.B.N. 57 856 868 965

411 Princes Hwy, Colac West, VIC 3250
Phone: 03 5231 6900 Fax: 03 5231 6814
westvic@bigpond.net.au
www.westvicsheds.com.au

Customer Details:	Extra Contact:
Ben Shed Lot3,- 3935 GOR Johanna 3238 0427374713	ben.hoodless@bayer.com

Quote Number: 28181

25/10/2018
Valid for 30 days

Quotation Overview:

Dimensions:

Span:	8m
Length:	14m
Wall Height:	3.6m
Bay Width:	1 x 2m,& 3x 4m,Bays front and rear and 2 x 4m Bays side walls
Roof Pitch:	11Deg°
Leanto:	,

Design Factors:

Importance Level:	1	Topography:	1
Wind Region:	Reg A	Terrain Category:	TCat 2.5

Building Details:

Walls	COLORBOND® WINDSPRAY Monoclad 0.42 CB
Roof	COLORBOND® MONUMENT Corrugated 0.42 CB 11Deg°
Gutter	COLORBOND® MONUMENT Quad 115 Plain Gutter CB
Downpipe	COLORBOND® MONUMENT
Barge	COLORBOND® MONUMENT
Roller Doors	3.090m Wide x 3.100m High. Door in Bay 2 of FRONT wall. COLORBOND® MONUMENT
PA Doors	1 x Personal Access Door ® MONUMENT
Windows	2 x 790 x 1731 XO
Insulation	
Open Bays	Bay 1 open in FRONT & BACK wall. Bay 3 & 4 open in FRONT wall.
Divider Walls	Bay Divider Wall at bay 2

Materials:

Columns:	2C15012	Purlins:	Z10010
Rafters:	2C15015	Side Girts:	Z10010
Knee/Apex Brace:	C10010	End Girts:	Z10010
Left Leanto Column: Left Leanto Rafter:		Right Leanto Column: Right Leanto Rafter:	
Mezzanine Bearer:		Mezzanine Joists:	

Quotation		Payment Schedule
Shed Kit Price (Inc GST)	$16,520.00	The following deposit and payment schedule is required. 20% Deposit of kit price Balance due 3 days prior to delivery

Notes:

Erection $4950 Concrete $9500- 100mm concrete on a level site ESTIMATE only prior to site visit

Building Permits are aprox $1000

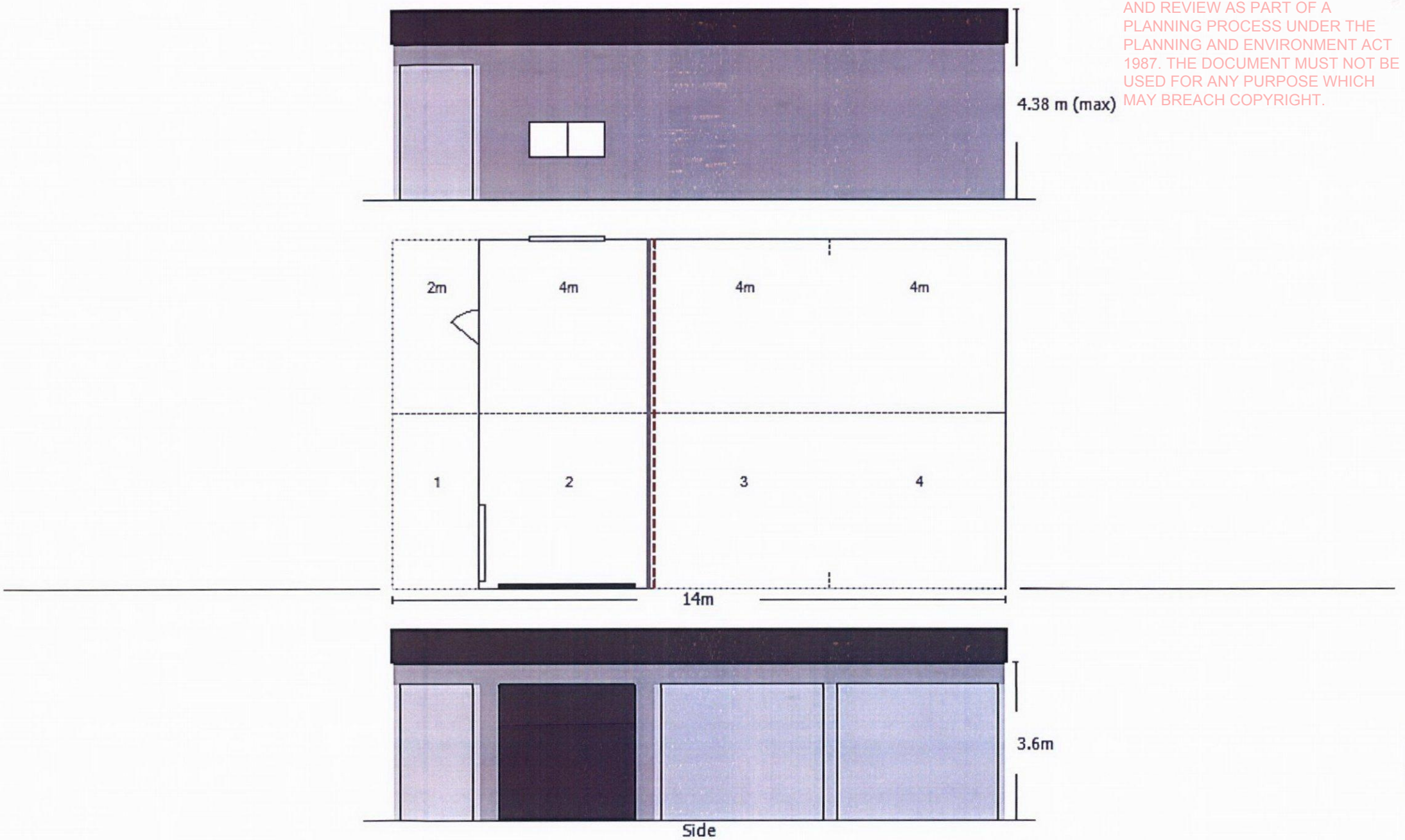
Planning Permit Through your local shire

Confirmation of order

I hereby agree to place this order based on the details and terms and conditions provided .

Customer Name:		Customer Signature:
Date:		

D19/11590



REGISTER SEARCH STATEMENT (Title Search) Transfer of Land Act 1958

VOLUME 10193 FOLIO 989

Security no : 124075727470L
Produced 16/01/2019 10:41 AM

LAND DESCRIPTION

Lot 3 on Plan of Subdivision 330301U.
PARENT TITLE Volume 09297 Folio 164
Created by instrument PS330301U 14/10/1994

REGISTERED PROPRIETOR

Estate Fee Simple
Joint Proprietors
BENJAMIN MARK HOODLESS
PENELOPE BROMELL HEARD both of 60 ANDREW STREET WINDSOR VIC 3181
AR608409G 31/10/2018

ENCUMBRANCES, CAVEATS AND NOTICES

Any encumbrances created by Section 98 Transfer of Land Act 1958 or Section 24 Subdivision Act 1988 and any other encumbrances shown or entered on the plan set out under DIAGRAM LOCATION below.

AGREEMENT Section 173 PLANNING AND ENVIRONMENT ACT 1987
T324853L 27/09/1994

DIAGRAM LOCATION

SEE PS330301U FOR FURTHER DETAILS AND BOUNDARIES

ACTIVITY IN THE LAST 125 DAYS

NUMBER		STATUS	DATE
AR607626D (E)	CONV PCT & NOM ECT TO LC	Completed	31/10/2018
AR608409G (E)	TRANSFER	Registered	31/10/2018

----------END OF REGISTER SEARCH STATEMENT----------

Additional information: (not part of the Register Search Statement)

Street Address: 3935 GREAT OCEAN ROAD JOHANNA VIC 3238

DOCUMENT END

Imaged Document Cover Sheet

The document following this cover sheet is an imaged document supplied by LANDATA®, Land Use Victoria.

Document Type	**Plan**
Document Identification	**PS330301U**
Number of Pages (excluding this cover sheet)	**2**
Document Assembled	**16/01/2019 10:52**

PLAN OF SUBDIVISION

STAGE NO. \

LTO use only **EDITION 1**

Plan Number **PS 330301U**

Location of Land

Parish: AIRE

Township:

Section:

Crown Allotment: 50 (PART), 49 (PART) AND PARTS OF A FORMER GOVERNMENT ROAD

LTO Base Record: LITHO (2005)

Title Reference: VOL. 9297 FOL. 164

Last Plan Reference:

Postal Address: GREAT OCEAN ROAD
(at time of subdivision) JOHANNA, 3238

AMG Co-ordinates E 708 800
(of approx. centre of land in plan) N 5710 300 Zone: 54H

Vesting of Roads and/or Reserves

Identifier	Council/Body/Person

Council Certificate and Endorsement

Council Name: SHIRE OF OTWAY Ref: 868

1. This plan is certified under section 6 of the Subdivision Act 1988.
2. ~~This plan is certified under section 11(7) of the Subdivision Act 1988. Date of original certification under section 6 / /~~
3. This is a statement of compliance issued under section 21 of the Subdivision Act 1988.

OPEN SPACE

(i) A requirement for public open space under section 18 of the Subdivision Act 1988 ~~has~~/has not been made.

~~(ii) The requirement has been satisfied.~~

~~(iii) The requirement is to be satisfied in Stage.....~~

Council delegate
~~Council seal~~

Date 12 / 4 / 1994

~~Re-certified under section 11(7) of the Subdivision Act 1988~~

~~Council Delegate~~
~~Council Seal~~

~~Date~~ / /

Notations

Staging This ~~is~~/is not a staged subdivision
Planning Permit No. 1277

Depth Limitation 15.24 METRES BELOW THE SURFACE APPLIES TO ALL THE LAND IN THE PLAN

LOTS 1 AND 2 AND THE CONNECTIONS ~~79°58'~~, 66.89; 7°42'30", 149.13; ~~229°58'~~ 79.18 & 286°48' 50.89 ARE THE RESULT OF THIS SURVEY

AREA OF LOT 3 HAS BEEN OBTAINED BY DEDUCTION FROM TITLE

WATERWAY NOTATION:
LOT 3 IN THIS PLAN MAY ABUT CROWN LAND THAT MAY BE SUBJECT TO A CROWN LICENCE TO USE

Survey This plan is/~~is not~~ based on survey

This survey has been connected to permanent marks no(s)
In Proclaimed Survey Area No.

Easement Information

Legend: A Appurtenant Easement E - Encumbering Easement R - Encumbering Easement (Road)

Easement Reference	Purpose	Width (Metres)	Origin	Land Benefited/In Favour Of
E-1	POWERLINE	15	THIS PLAN & SECTION 103 OF THE SEC ACT.	SECV

LTO use only

Statement of Compliance/ Exemption Statement

Received ✓

Date 6 / 9 / 94

LTO use only

PLAN REGISTERED

TIME 3.10

DATE 14 / 10 / 94

Assistant Registrar of Titles

Sheet 1 of 2 Sheets

TONY JEAVONS SURVEYS
PO BOX 196
APOLLO BAY, 3233
PHONE 052 376 757 B.H.
376 409 A.H.

LICENSED SURVEYOR (PRINT) ANTHONY H. JEAVONS

SIGNATURE..... DATE 8 / 2 /94

REF 00539 VERSION

DATE / /

COUNCIL DELEGATE SIGNATURE

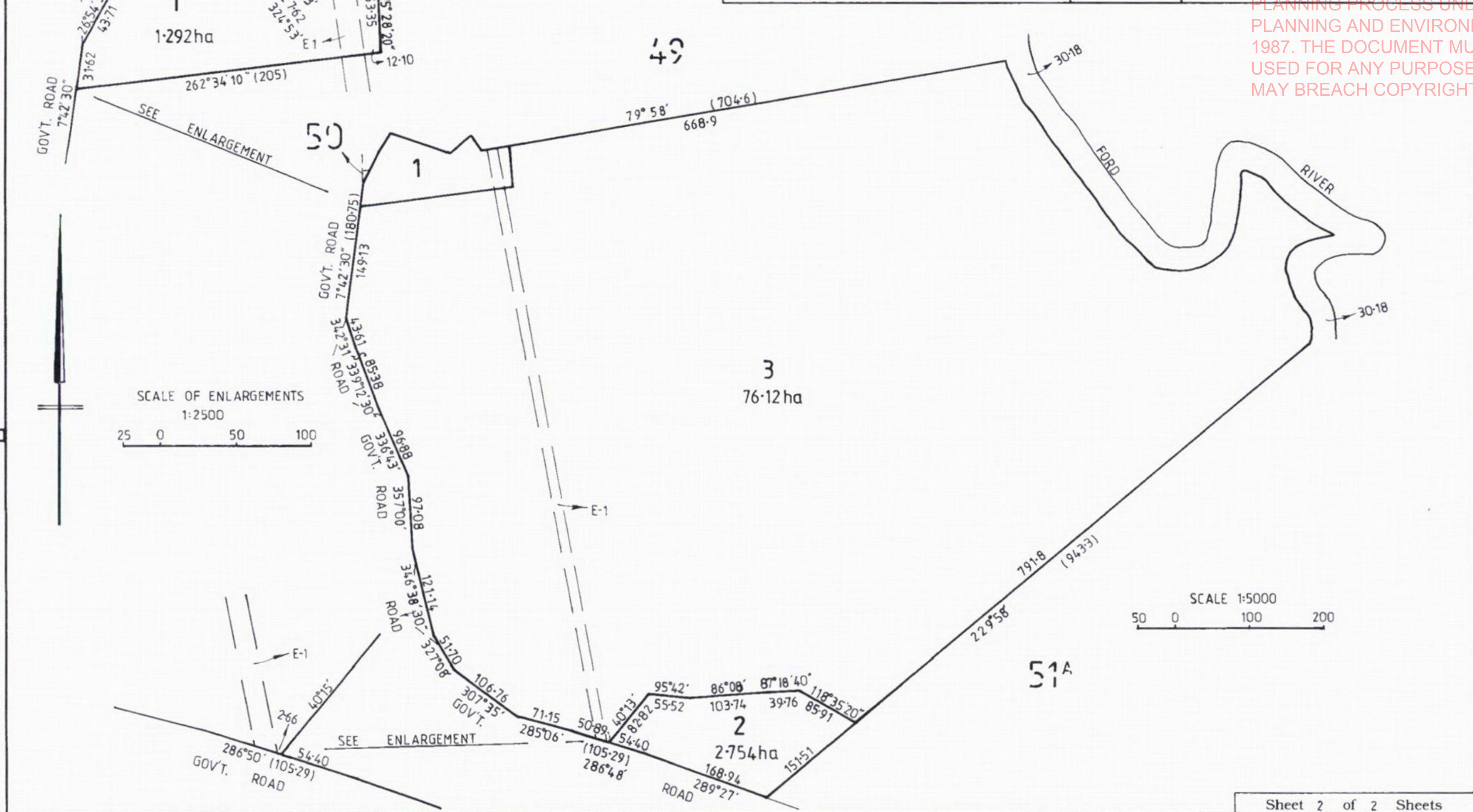
Original sheet size A3

T.O.1

D19/11590

PLAN OF SUBDIVISION

Stage No.	Plan Number
	PS 330301U



TONY JEAVONS SURVEYS
PO BOX 196
APOLLO BAY, 3233
PHONE 052 376 757 BH
376 409 AH

Sheet 2 of 2 Sheets

ORIGINAL SCALE	SHEET SIZE	SCALE		
AS SHOWN	A3	LENGTHS ARE IN METRES	LICENSED SURVEYOR (PRINT) ANTHONY H JEAVONS SIGNATURE .... DATE 8 / 2 / 94 REF 00539 VERSION	DATE / / COUNCIL DELEGATE SIGNATURE

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T.O. 3

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D19/11590

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270994 2300 173 $0 T3248531L

T3248531L

Lodged by :
MESSRS. SEWELLS, SOLIC.
Code : 1558N

VICTORIA

APPLICATION BY A RESPONSIBLE AUTHORITY UNDER SECTION 181 PLANNING AND ENVIRONMENT ACT 1987 FOR ENTRY OF A MEMORANDUM OF AGREEMENT UNDER SECTION 173 OF THE ACT.

The Responsible Authority under the Planning Scheme having entered into an Agreement with the parties named for the land described requires that a memorandum of the Agreement be entered on the Certificate(s) of Title to the land referred to.

LAND

Lot 3 on Plan of Subdivision PS330301U being part of the property as described in Certificate of Title Volume 9297 Folio 164.

Now = 10193 - 989

ADDRESS OF THE LAND

28/10/94

Great Ocean Road, Lavers Hill

RESPONSIBLE AUTHORITY

Shire of Otway of Main Road, Beech Forest

PLANNING SCHEME

Otway Planning Scheme

AGREEMENT DATE	**AGREEMENT WITH**
23rd March 1994 ✓	BRIAN DENNEY and VALDA MARGARET DENNEY of Lavers Hill

A copy of the Agreement is attached to this Application.

.....
Signature for the Responsible Authority

JEREMY TATCHELL - Chief Executive Officer

DATE ..17.05.94.....

16/8/94

28 OCT 1994

ASEP

This Agreement is made the 23rd day of March 1994

Between:

1. The President, Councillors and Ratepayers of the Shire of Otway of Beech Forest ("the Council"); and

2. Brian Denney and Valda Margaret Denney of Lavers Hill ("the Owners").

Whereas:

A. The Owners are the registered proprietors of Part Crown Allotments 49 and 50 and parts of a former government road, Parish of Aire being the whole of the land in Certificate of Title Volume 9297 Folio 164 ("the title") a copy of which is attached marked "A".

B. The Owners have applied to the Council for permission to subdivide the land as described in the title into 3 lots by Plan of Subdivision numbered PS 330301U ("the plan"), a copy of which is attached marked "B".

C. Council has permitted the said subdivision subject to compliance with the conditions on Permit No. (OPS-1277) dated the 30th day of March, 1993 ("the permit"), a copy of which is attached marked "C".

D. Condition No 4 of the permit requires -

"The developer shall enter into a Section 173 Agreement under the Planning and Environment Act 1987. ("The Agreement"). The Agreement shall take the form of a Rural Development Agreement and shall be entered into with Council prior to the issuing a Statement of Compliance".

E. The Agreement shall effect and bind Lot 3 on the plan (hereafter called "the land").

NOW THIS AGREEMENT WITNESSETH AND THE PARTIES AGREE AND COVENANT AS FOLLOWS:-

1. Without limiting the operation or effect which the Agreement otherwise has the parties acknowledge that the Agreement is made pursuant to Section 173 of the Planning and Environment Act 1987.

2. The Agreement shall come into force immediately upon execution by all parties and shall run with the land.

3. The owners covenants with the Council that the land which comprises 76.12 hectares shall now and hereafter be used for the primary purpose of Agriculture and except as provided in Clause 4 there shall be no further subdivision of the land.

4. The parties agree that there must be a reasonable chance of improved agricultural use of the area if any future subdivision of the land is to be considered:-

(1) Council may consider the creation of additional lots only if the primary objective of rural retention is clearly not compromised and the proposal meets the criteria of orderly and proper planning of the area and

(2) The proposal does not contravene any State or Local Section Policy.

(3) Council may also consider the diversity of land use potential involved and the importance of existing, new or proposed use and the extent to which the existing boundaries could still be improved to encourage better land management and use for a multiplicity of uses (e.g. water catchment/forestry or Tourism/rural)

(4) Further Council may consider (particularly in relation to

fair entitlements) at the time which the owner, or his immediate family, have farmed the land and the length of time elapsed since a rural agreement, the last transfer or subdivision of the property and/or size of a holding at a particular date in the past.

5. The parties agree to do all things reasonably necessary to enable the Council to enter a Memorandum of this Agreement on the Certificate of Title to issue for the land in accordance with Section 181 of the Act.

6. The owners warrant and covenant that -

(1) They are the registered proprietors and the beneficial owners of the land;

(2) That there are no mortgages liens charges easements or other rights or interest in any person affecting the land and not disclosed by the usual searches.

7. The owners covenant with the Council not to sell transfer dispose of assign mortgage or otherwise part with possession of the land prior to a copy of the Agreement being registered with the registrar of titles without first disclosing to their successors the existence and nature of the Agreement.

8. Disputes arising between the parties on interpretation of the Agreement or its application which cannot be resolved by the parties may be referred to the Administrative Appeals Tribunal.

9. Any notice hereunder may be served by delivering the same to the Council or to the Owners at their respective address herein or other or usual last known address or place of abode or by putting the same into the post in a prepaid certified

envelope addressed to the Council or to the Owner, as the case may be, at their said address and any notice posted aforesaid shall be deemed conclusively to have been served on the Council or to the Owner, as the case may be, at the expiration of 48 hours from the time of its posting.

10. The expression "Owners" shall be deemed to include the successors assigns and transferees of the Owners.

11. The Agreement shall continue to bind the land until the Owners and the Council enter into an Agreement pursuant to Section 177(2) of the Act to end the Agreement.

THE CORPORATE SEAL of THE PRESIDENT COUNCILLORS AND RATEPAYERS OF THE SHIRE OF OTWAY was hereto affixed in the presence of -

..... President

..... Councillor

..... Secretary

SIGNED by the owners in the presence of:-

Sue Denney.

Y - Yellow ; O - Orange
BN - Brown H - Hatched
BL - Blue CH - Cross Hatched

are supplied pursuant to Section 11(4)(a) of the Transfer of Land Act 1958 DATE: 17 FEB 1966

376-3107 "A"

ORIGINAL

NOT TO BE TAKEN FROM THE OFFICE OF TITLES

REGISTER BOOK

VOL. 9297 FOL. 164

VICTORIA

Certificate of Title

UNDER THE "TRANSFER OF LAND ACT"

FOL.

BRIAN DENNEY Farmer and VALDA MARGARET DENNEY Married Woman both of - - - - -- Lavers Hill South are now joint proprietors of an estate in fee simple - --- subject to the encumbrances notified hereunder in so much as lies above the depth of 15.24 metres below the surface of ALL THAT piece of land delineated and coloured purple on the map on the sheet annexed hereto being part of - - Crown Allotments 49 and 50 and parts of a former Government Road - - - - - - Parish of Aire County of Polwarth -

VOL.

DATED the 26th day of August 1977

Assistant Registrar of Titles

OFFICE OF TITLES VICTORIA

ENCUMBRANCES REFERRED TO

MORTGAGE C409258- - - - - - - -

THE ABOVE MORTGAGE IS DISCHARGED 28 SEP 1983 K563954

Certificate of Titles Vols.6893 Fols.483
7423 415
7701 139

L.G.D. File No.2780

MEASUREMENTS ARE IN

C763109

Unregistered Dealings NIL

Searched 7/2/1994 BY B. H. OGILVIE

D19/11590

VOL. 9297 FOL. 164 INSTRUMENT APPLICATION

CAVEAT No. K302864 LODGED by the Registrar of Titles pursuant to Section 94A Act 6254.

Date: 18 MAR 1983

Registrar of Titles

CAVEAT WITHDRAWN

28 MAY 1993

MORTGAGE to RURAL FINANCE COMMISSION

Registered 16th August 1983

No. L209637M

DISCHARGED 26 MAR 1993

OFFICE OF TITLES M.W.

OFFICE OF TITLES C.P.N.

MORTGAGE

COMMONWEALTH DEVELOPMENT BANK OF AUSTRALIA

REGISTERED 19/9/85

L896332T

OFFICE OF TITLES M.J.H.

OFFICE OF TITLES J.W.

MORTGAGE

RURAL FINANCE CORPORATION OF VICTORIA

S415042P 26/3/93

OFFICE OF TITLES M.W.

F. D. Atkinson, Government Printer, Melbourne

D19/11590

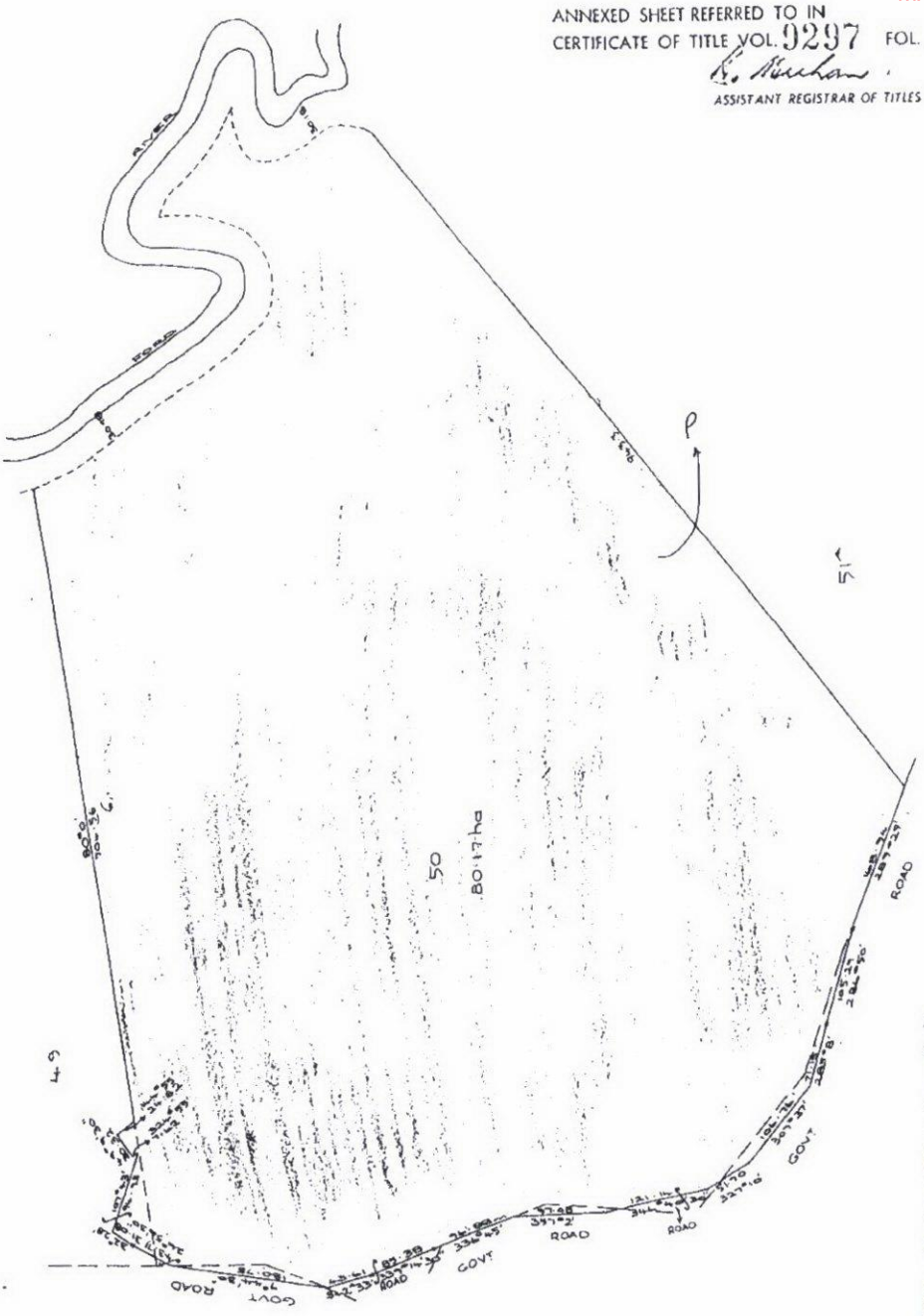
Y - Yellow
R - Red
OR - Orange
BL - Blue
H - Hatched
CH - Cross Hatched

DATE : 17 FEB 1994

"A"

ANNEXED SHEET REFERRED TO IN
CERTIFICATE OF TITLE VOL. 9297 FOL. 164

ASSISTANT REGISTRAR OF TITLES



"B"

PLAN OF SUBDIVISION

STAGE NO.	LTO use only	Plan Number
/	EDITION	PS 330301U

Location of Land

Parish: AIRE

Township:

Section:

Crown Allotment: 50 (PART), 49 (PART) AND PARTS OF A FORMER GOVERNMENT ROAD

LTO Base Record: LITHO

Title Reference: VOL. 9297 FOL. 164

Last Plan Reference:

Postal Address: GREAT OCEAN ROAD (at time of subdivision) JOHANNA, 3238

AMG Co-ordinates (of approx. centre of land in plan) E 708 800 N 5710 300 Zone: 54H

Vesting of Roads and/or Reserves

Identifier	Council/Body/Person

Council Certificate and Endorsement

Council Name: SHIRE OF OTWAY Ref:

1. This plan is certified under section 6 of the Subdivision Act 1988.
2. This plan is certified under section 11(7) of the Subdivision Act 1988. Date of original certification under section 6 / /
3. This is a statement of compliance issued under section 21 of the Subdivision Act 1988.

OPEN SPACE

(i) A requirement for public open space under section 18 of the Subdivision Act 1988 has/has not been made.

(ii) The requirement has been satisfied.

(iii) The requirement is to be satisfied in Stage.....

Council delegate
Council seal

Date / /

Re-certified under section 11(7) of the Subdivision Act 1988

Council Delegate
Council Seal

Date / /

Notations

Staging This is/is not a staged subdivision
Planning Permit No. 1277

Depth Limitation 15·24 METRES BELOW THE SURFACE APPLIES TO ALL THE LAND IN THE PLAN

LOTS 1 AND 2 AND THE CONNECTIONS 80°00', 668·9; 7°44' 30", 149·13; 230°00', 791·8 & 286°50' 50·89 ARE THE RESULT OF THIS SURVEY

AREA OF LOT 3 HAS BEEN OBTAINED BY DEDUCTION FROM TITLE

Survey This plan is/~~is not~~ based on survey

This survey has been connected to permanent marks no(s)
In Proclaimed Survey Area No.

Easement Information

Legend: A - Appurtenant Easement E - Encumbering Easement R - Encumbering Easement (Road)

Easement Reference	Purpose	Width (Metres)	Origin	Land Benefited/In Favour Of
E-1	POWERLINE	15	THIS PLAN & SECTION 103 OF THE SEC. ACT.	SECV

LTO use only

Statement of Compliance/ Exemption Statement

Received ☐

Date / /

LTO use only

PLAN REGISTERED

TIME

DATE / /

Assistant Registrar of Titles

Sheet 1 of 2 Sheets

TONY JEAVONS SURVEYS
PO BOX 196
APOLLO BAY, 3233
PHONE 052 376 757 B.H.
376 109 A.H.

LICENSED SURVEYOR (PRINT) ANTHONY H. JEAVONS

SIGNATURE..... DATE 8 / 2 /94

REF 00539 VERSION

DATE / /

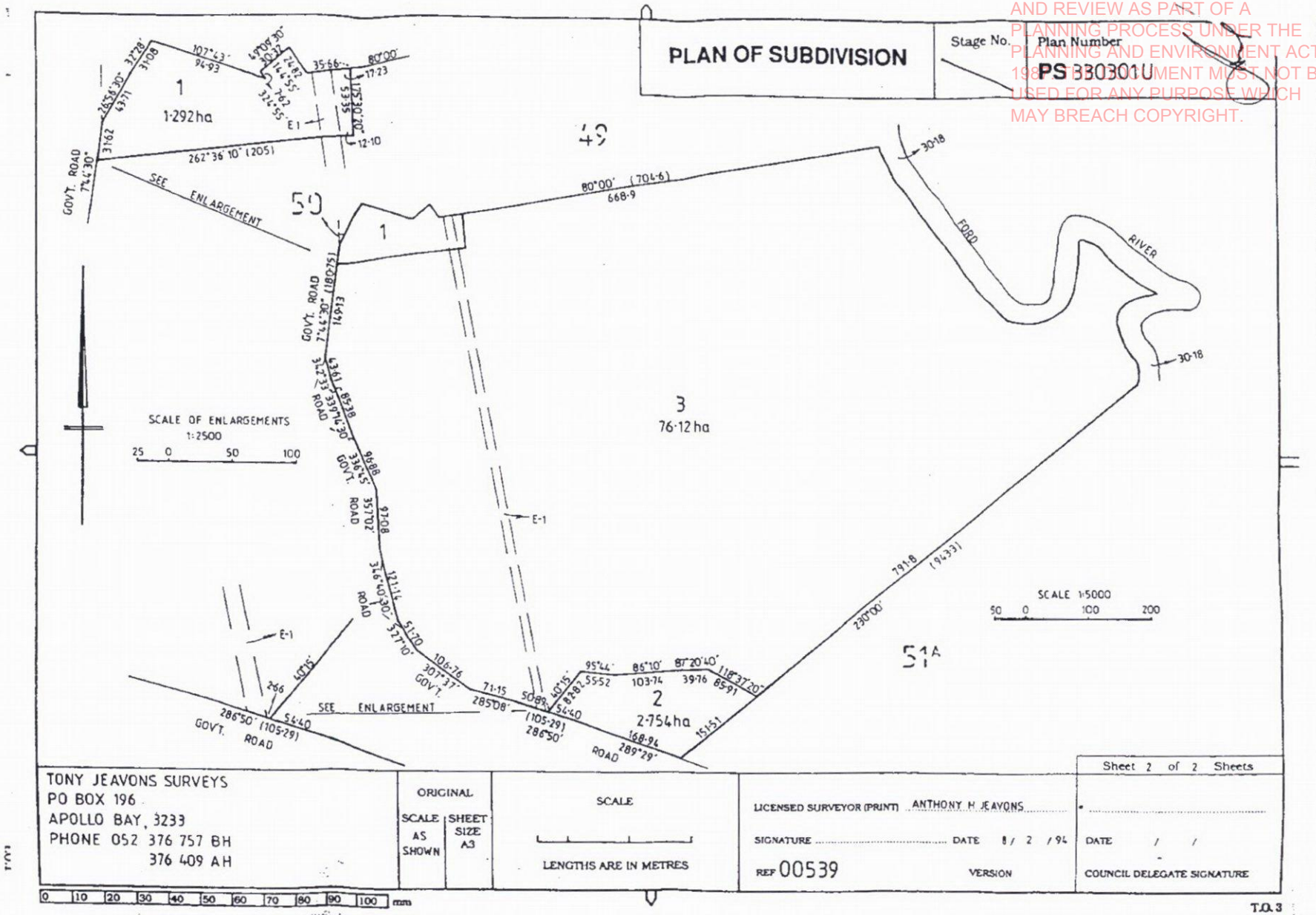
COUNCIL DELEGATE SIGNATURE

PLAN OF SUBDIVISION

Stage No.

Plan Number

PS 330301U



TONY JEAVONS SURVEYS PO BOX 196 APOLLO BAY, 3233 PHONE 052 376 757 BH 376 409 AH	ORIGINAL SCALE AS SHOWN SHEET SIZE A3	SCALE LENGTHS ARE IN METRES	LICENSED SURVEYOR (PRINT) ANTHONY H JEAVONS SIGNATURE ..... DATE 8 / 2 / 94 REF 00539 VERSION	Sheet 2 of 2 Sheets DATE / / COUNCIL DELEGATE SIGNATURE

0 10 20 30 40 50 60 70 80 90 100 mm

T.O.3

"C"

B & V Denney
RMB 1670,
LAVERS HILL. 3238

PLANNING PERMIT

PERMIT NO. OPS-1277

PLANNING SCHEME = CHAPTER 2

RESPONSIBLE AUTHORITY - SHIRE OF OTWAY

ADDRESS OF THE LAND

Crown Allotments 28C, 28D & Pt C.A. 50, Parish of aire, Great Ocean Road, Lavers Hill.

THE PERMIT ALLOWS

3 Lot subdivision with transfer and consolidation.

THE FOLLOWING CONDITIONS APPLY TO THIS PERMIT.

1. This permit authorises a 3 lot subdivision and consolidation in accordance with plans to be submitted and endorsed by the Responsible Authority.

2. Plans submitted for certification shall meet the requirements of the Subdivision Act 1988.

3. The developer shall mark street numbers for all lots in the subdivision in accordance with the Shire's street numbering scheme to the satisfaction of the Shire Engineer.

4. The developer shall enter into a Section 173 Agreement under the Planning and Environment Act 1987. This agreement shall take the form of a Rural Development Agreement and shall be entered into with Council prior to the issuing of a Statement of Compliance.

5. A statement of compliance shall not be issued for proposed lots 1,2 & 3 until the Responsible Authority has been notified by the titles office that a plan of consolidation of Crown Allotments 28C & 28D has been lodged.

DATE ISSUED: 30-3-1993

SIGNATURE FOR THE RESPONSIBLE AUTHORITY

Planning and Environment Regulations 1988 Form 4.4

Bushfire Attack Level Assessment

The BAL for this site has been calculated using the Simplified Procedure (Method 1 – Clause 2.2) in accordance with the requirements of AS3959-2009 – Construction of Buildings in Bushfire Prone Areas.

For this particular site, with the house siting supplied, the following parameters were observed:

Fire Danger Index (FDI)		100			
Approximate Direction		North	East	South	West
Exclusions as Per AS3959-2009 Clause 2.2.3.2		(e) (f)	(e) (f)	(e) (f)	(e) (f)
Distance to Classifiable Vegetation from Proposed Siting	Grassland	>50m	>50m	>50m	>50m
	Non-Grassland	>100m	>100m	>100m	>100m
Type of Classifiable Vegetation (if within 100m of siting)		-	-	-	-
Slope of Vegetation (if within 100m of siting)		-	-	-	-
Bushfire Attack Level (BAL)		**12.5***			

***This site is within a designated Bushfire Prone Area. Current Building Regulations 2006 (Regulation 812) stipulates that if a site has been deemed BAL LOW in accordance to 'AS3959 -2009 – Construction of buildings in bushfire-prone areas' but is within a 'Designated Bushfire Prone Area' then the rating will automatically default to BAL 12.5.**

For more information on this regulation please visit http://www.vba.vic.gov.au/practitioners/legislation

Notes:

1. If the house siting changes, the BAL will need to be reassessed to address the impact of moving the house further or closer to the various vegetation need this site.

2. The above BAL rating is measured based on the condition of the vegetation at the time of assessment and it is valid on the condition that the vegetation is maintained as such.

D19/11590

Intrax
Engineering Confidence

- Structural
- Geotechnical
- Civil
- Residential
- Forensic
- Building Services
- Surveying

Land Capability Assessment Report

Lot. 3, No. 3935, Great Ocean Road, Johanna, Vic, 3238

Author
Evan Jeremiejczyk

Published
7/12/2018

Document Revision: 0
Template Version: i
Template Name: Master with Cover

Submitted To
Anchor Homes
Po Box 210
Sale VIC 3850

Site Number
116009

Date
7/12/2018

Intrax Consulting Engineers Pty Ltd
ABN: 31 106 481 252

Head Office
35 Bank Street
South Melbourne, Vic 3205
p: 03 8371 0100 f: 03 8371 0199
w: www.intrax.com.au

Intrax
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Table of Contents

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Direct Contact

Any questions or queries regarding this report should be directed to the Geotechnical Department, Engineering Team on 03 8371 0100 or scott.emmett@intrax.com.au.

Copyright

Document Revision History

Date	Rev	Author	Approved by	Comments
07-Dec-18	0	Evan Jeremiejczyk	Scott Emmett	First Edition

List of Appendices

APPENDIX A: Site Plan

APPENDIX B: Site and Soil Assessment Matrix

APPENDIX C: Climate Data

APPENDIX D: Water Balance

APPENDIX E: Percolation Test Report

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Executive Summary

Lot. 3, No. 3935, Great Ocean Road, Johanna, Vic, 3238 has a favourable aspect and exposure properties for land application of wastewater, which will be utilised to benefit the soil properties for the site.

This report recommends that an AWTS or similar is used to apply advanced secondary treated wastewater to a subsurface drip irrigation land application area, The irrigation lines are to be installed a minimum of 100mm into the good quality sandy LOAM soils. To design the application area; the proposed 3 bedroom dwelling is assumed to produce a wastewater loading of 480 L/day due to onsite Tank Water being used as per AS1547:2012; and a DIR of 3.5mm/day will be adopted for the limiting sandy clay LOAM soil layer.

Installation of AAA-rated water fixtures to reduce water use and wastewater loadings are to be used throughout the house. Use of low phosphorus and low sodium (liquid) detergents to improve effluent quality and maintain beneficial uses of groundwater.

Operation and maintenance of the treatment and disposal systems in accordance with the manufacturer's recommendations and the recommendations made in this report.

REPORT AUTHOR/S:

Mr Evan Jeremiejczyk

Senior Field Operations – Land Capability Assessor

Mr Scott Emmett

Geologist

BSc (EarthScience) Hons, MAIG

REPORT CONTACT:

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03 8371 0100
evan.jeremiejczyk@intrax.com.au

Intrax Consulting Engineers Pty Ltd

Geotechnical Consultants

Unit 11, 85 Mt Derrimut Road

DEER PARK, VIC, 3023

Intrax
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1 Introduction

This report outlines the findings of a field investigation at Lot. 3, No. 3935, Great Ocean Road, Johanna, Vic, 3238, carried out by Intrax Consulting Engineers Pty Ltd (Intrax) on the 29th of November 2018, with the purpose to conduct a Land Capability Assessment (LCA).

The investigation included desktop research, field observations, borehole drilling, in-situ soil permeability testing and field soil analysis. The report discusses the findings of the investigation and provides recommendations for suitable effluent treatment systems and their associated maintenance requirements.

2 Development Overview

2.1 Proposed Development

The proposed plans submitted by Anchor Homes. (Dated: 30/10/2018) have been used in this assessment.

Based on the plans and information provided to this office by the owner/applicant, it has been assumed that within the proposed allotment a 3 bedroom dwelling would be constructed, therefore under the guidelines provided in the EPA Publication 891.4 (2016) section 3.4 wastewater loads are to be based upon the usage of 4 people.

2.2 Site Overview

Table 1: Site Overview

Site Address	:	Lot. 3, No. 3935, Great Ocean Road, Johanna, Vic, 3238
Owner Applicant	:	Anchor Homes
Council	:	Colac Otway Shire Council
Domestic Wastewater Management Plan	:	Colac Otway Shire Council Domestic Wastewater Management Plan Operational Plan & Technical Document – **No restrictions placed on the township of Johanna**
Land Area	:	76.12 hectares
Zoning	:	FZ, BMO, EMO1
Domestic Water Supply	:	Tank Water
Availability of Sewer	:	Sewer will not be available in the foreseeable future
Groundwater Quality	:	Class A potable water
Proposed Development	:	Single storey dwelling
Anticipated Wastewater Load	:	Dwelling: 3 bedrooms (assumed), up to 4 people. 1. EPA {(No. Bdrms) + 1 } x 150L/person.day* = 600L/day

2. AS1547-2000 Table H2 - 150L/person.day = 600L/day

3. Reduced loading due too onsite roof water tank supply AS1547-2012 Table H1 - 120L/person.day = 480L/day

**150L/person.day assumes the use of full water-reduction fixtures (EPA 891.4, 2016)*

3 Site Assessment

3.1 Method

Intrax has used a combination of desktop and field resources to complete the site assessment for this LCA. Desktop resources include local geological maps, climate and weather data obtained from the Bureau of Meteorology (BOM), aerial photography, Department of Environment Land, Water and Planning (DELWP) while the field assessment involved a site walk over with observations made on specific site features.

3.2 Locality Plan

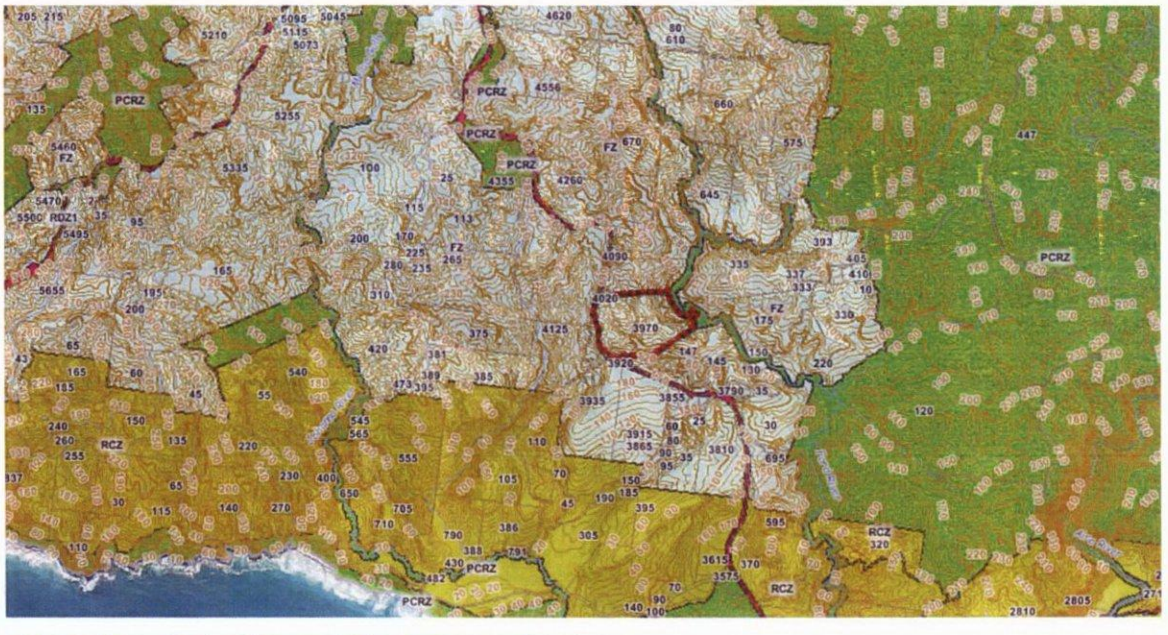

Figure 1: Site Locality (http://services.land.vic.gov.au/maps/pmo.jsp)

3.3 Assessment

The site and soil assessment matrix is appended this report in Appendix B.

Table 2: Site Assessment

Site Features	Assessment	Constraint Level*
Aspect	North, South, East and West	1
Climate	Excess of evaporation over rainfall annually	1

Erosion and Landslip	Landslip Low risk – refer to Slope Stability Assessment	1
Exposure	High Sun and Wind exposure	1
FILL (imported)	Nil	1
Flooding	Nil	1
Groundwater bores	Not in the vicinity of this site	1
Landform	Hills	
Setback Distances	Exceeds setback requirements	1
Rock Outcrops	Nil	1
Slope	Proposed effluent field location is on the ridge line of the property with slopes at approximately 5-8%. Surrounding slopes are found to be up to 30-40% slope.	3
Soil Drainage	Well drained no standing water	1
Stormwater Run-on and Run-off	Nil - minor	1
Surface Waters	Exceeds setback requirements	1
Vegetation	Pasture	1
Existing Septic	Nil	1

*[1] = Nil or Minor Constraint, [2] = Moderate Constraint, [3] = Major Constraint

3.3.1 Mitigation

Mitigation required to deal with the identified site constraints.

- **Slope**: Any system shall be placed on the ridge of the allotment which is found to be the least steepest area of the site.

4 Soil Assessment

4.1 Method

The soil assessment was completed on site by drilling a total of four (4) boreholes with a hand hammer. Three (3) boreholes were drilled to an approximate depth of 0.6 metres for the purpose of completing a soil permeability test, while the remaining borehole was drilled to a depth of 1.8 metres to classify the soil profile.

The soil permeability was determined by adopting the methodology outlined in AS1547-2012 Appendix G, the Talsma Hallam Test Method. The apparatus utilised consisted of a 1.6m long permeameter as required by section G3 (AS1547-2012).

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4.2 Soil Profile

The soil profile in the test boreholes generally consisted of sandy LOAM overlying sandy CLAY. All soils encountered in the test boreholes were moist.

The table below represents the engineering log of the boreholes obtained during hand hammering at the approximate locations as shown on the attached plan.

Table 3: Borehole log of deep borehole

Soil Description	BH1	BH2	BH3	BH4
Sandy LOAM	200mm	250mm	200mm	200mm
Grey, Loose, moist, organic material				
Sandy clay LOAM	600mm	600mm	600mm	1000mm
Grey orange brown, stiff, m>PL, medium plasticity				
XW ROCK (SANDSTONE)				1800mm
Grey mottled orange, moist, medium dense				
End of Borehole (1800mm)				

4.3 Soil Permeability

Table 4: Talsma Hallam Soil permeability test results

Test Site	Depth	Soil Type	Soil Permeability, Ksat (m/day)
1	600mm	Sandy clay LOAM	0.61
2	600mm	Sandy clay LOAM	1.11
3	600mm	Sandy clay LOAM	0.66
Average			0.79

4.4 Assessment

The site and soil assessment matrix is appended in this report in Appendix B.

Soil Features	Assessment		Constraint Level*
	Sample Depth: 200mm	Sample Depth: 600mm	
Colour and Mottling	Grey	Orange brown grey	3
Texture	Sandy LOAM	Sandy clay LOAM	1
Coarse Fragments	Nil	Nil	1

Structure	Weakly	High	1
Dispersion (Emerson Class)	Class 4	Class 8	1
Permeability	1.4-3.0m/d	0.5-1.5m/d	
Soil Category AS1547-2012	2b	4a	1
pH (1:5)	6.70	6.10	1
EC (1:5)	5	2	
ECe^	0.054	0.019	1

*[1] = Nil or Minor Constraint, [2] = Moderate Constraint, [3] = Major Constraint

^ECe is calculated from EC(1:5) using a multiplication factor based on the textural analysis with values from Slavich & Petterson (1993)

4.4.1 Mitigation

Mitigation required to deal with the identified site constraints.

- **Colour:** The sandy clay LOAM soil layer is the limiting layer within the site due to its lower permeability, indications of grey colour in the surface top soils (sandy LOAMS) show that these may remain wet for many months. High onsite permeability rates and less grey colour noticeable at depths below 200mm, indicate that water logging issues will not be an issue. To accommodate for the soil condition an appropriate DIR will be adopted for the sandy clay LOAM in application area sizing.

5 Discussion

This site will have a favourable aspect and exposure properties for land application of wastewater, which will be utilised to benefit the soil properties for the site.

This report recommends that an AWTS or similar is used to apply secondary treated wastewater to a subsurface drip irrigation land application area, The irrigation lines are to be installed a minimum of 100mm into the good quality sandy LOAM soils. To design the application area; the proposed 3 bedroom dwelling is assumed to produce a wastewater loading of 480 L/day due to onsite Tank Water being used as per AS1547:2012; and a DIR of 3.5mm/day will be adopted for the limiting sandy clay LOAM soil layer.

6 Wastewater Management System

6.1 Treatment System

The recommended system is an AWTS or similar with land application by subsurface drip irrigation.

The irrigation lines are to be installed a minimum of 100mm into the good quality sandy LOAM soils. The irrigation field is to be immediately planted with evergreen vegetation to allow for maximum evapotranspiration.

Further details on construction details can be found in Appendix M of AS1547-2012.

6.1.1 Water Balance (Appendix D)

A model water balance has been undertaken to calculate sizing of irrigation systems. Appendix D contains excel spreadsheets for subsurface drip irrigation.

The local climate conditions are based on the Bureau Meteorology Station at Johanna which observes monthly rainfall and the Bureau Meteorology Station at Johanna which observes monthly pan evaporation (refer Appendix C). A daily wastewater output of 480 L/day due to onsite Tank Water being used as per AS1547:2012 and a conservative DIR of 3.5mm/day was adopted for design.

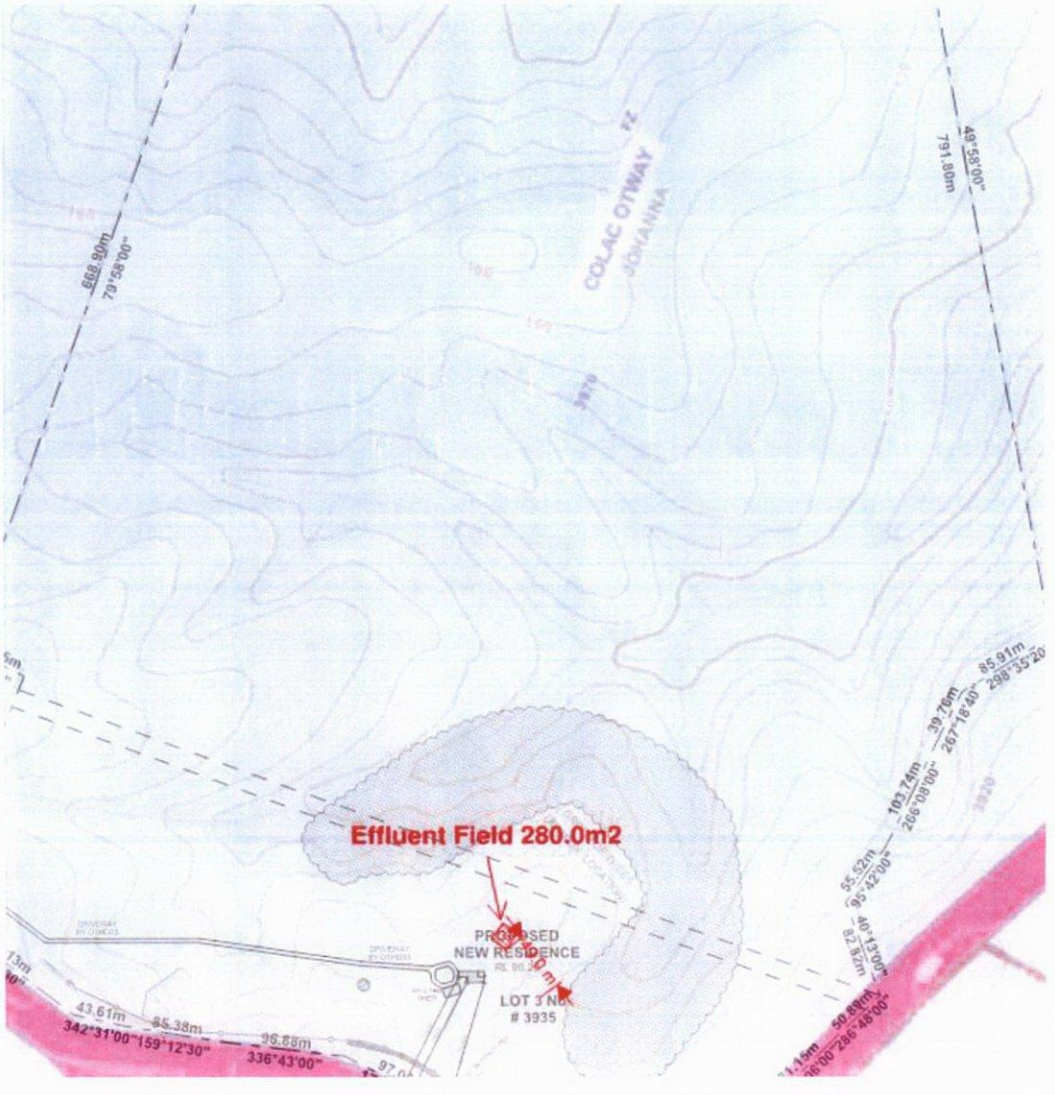
Based on the water and nitrogen balance the following minimum subsurface irrigation field sizes have been calculated:

Water Balance: 280.0 m^2

Nitrogen Balance: 159.0 m^2

The most conservative value is to be used when sizing the system, 280.0 m^2

6.2 Siting and Configuration



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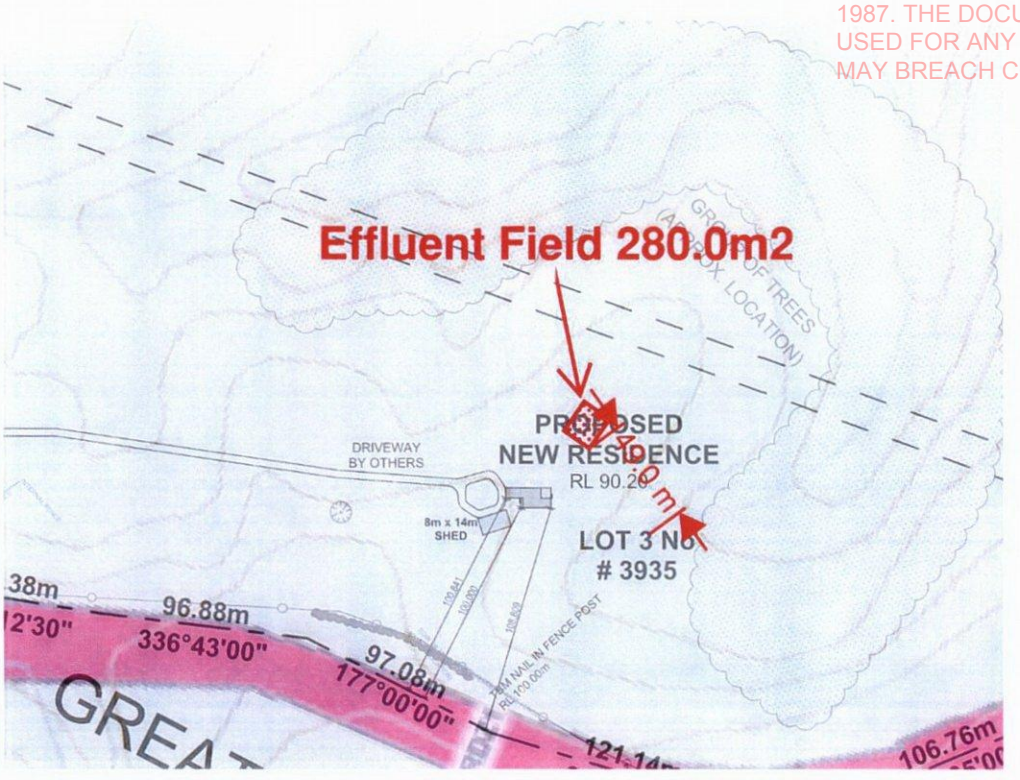

6.3 Buffer Distances

The setback or 'buffer' distances presented in Figure 3, below, are to be maintained from the land application area.

Table 5: Setback distances for primary and secondary treatment plants and effluent disposal/irrigation areas [1, 2, 6, 10, 19]

Landscape feature or structure	Setback distances (m)		
	Primary treated effluent	Secondary sewage and greywater effluent	Advanced secondary greywater effluent [3]
Building			
Wastewater field up-slope of building [7]	6	3	3
Wastewater field down-slope of building	3	1.5	1.5
Wastewater up-slope of cutting/escarpment [12]	15	15	15
Allotment boundary			
Wastewater field up-slope of adjacent lot	6	3	1
Wastewater field down-slope of adjacent lot	3	1.5	0.5
Services			
Water supply pipe	3	1.5	1.5
Wastewater up-slope of potable supply channel	300	150	150
Wastewater field down-slope of potable supply channel	20	10	10
Gas supply pipe	3	1.5	1.5
In-ground water tank [14]	15	4	3
Stormwater drain	6	3	2
Recreational areas			
Children's grassed playground [15]	6	3 [16]	2 [16]
In-ground swimming pool	6	3 [16]	2 [16]
Surface waters (up-slope of:)			
Dam, lake or reservoir (potable water supply) [8, 13]	300	150 [4]	150
Waterways (potable water supply) [9, 13]	100	100 [4, 17]	50
Waterways, wetlands (continuous or ephemeral, non-potable); estuaries, ocean beach at high-tide mark; dams, lakes or reservoirs (stock and domestic, non-potable) [8, 9]	60	30	30
Groundwater bores			
Category 1 and 2a soils	NA [11]	50 [5]	20
Category 2b to 6 soils	20	20	20
Watertable			
Vertical depth from base of trench to the highest seasonal water table [18]	1.5	1.5	1.5
Vertical depth from irrigation pipes to the highest seasonal water table [18]	NA	1.5	1.5

Figure 2: Table 5 - EPA Code Pub. 891.4 (refer to full publication for footnotes)

6.4 Monitoring, Operation and Maintenance

To ensure the Advance Secondary Treatment System system functions adequately residents must:

- Have a suitably qualified maintenance contractor service the Advance Secondary Treatment System every three months, as required by Council under the approval to operate

The requirements of the EPA Certificate of Approval should be adopted and followed. This requires:

- The wastewater quality meets:
  - BOD 10mg/L
  - Suspended Solids 10mg/L
  - E.Coli count <10 cfu per 100ml
  - Free residual chlorine <2mg/L
- A recycled water sample must be analysed for the above indicators to demonstrate the wastewater is being adequately treated. Sample results should be submitted to council on a yearly basis.
- The irrigation area must be a permanent dedicated area within the premises
- The dedicated irrigation area must be cultivated to a depth 100 mm, either planted with grasses or salt tolerant plants.

To ensure the treatment systems function adequately, residents must:

- Use household cleaning products sparingly and check that they are suitable for septic tanks.
- Keep as much fat and oil out of the system as possible; and
- Conserve water
- AAA rated fixtures are installed and maintained within the dwelling

Vegetation is cutback/mown regularly with clippings removed from the land application area to promote new growth, maximizing evapotranspiration

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7 Limitation of Report

1. The recommendations in this report are based on the following:

    a. Information about the site & its history, proposed site treatment and building type conveyed to us by the client and or their agent

    b. Professional judgements and opinions using the most recent information in soil testing practice that is available to us.

    c. The location of our test sites and the information gained from this and other investigations.

    Should the client or their agent neglect to supply us with correct or relevant information, including information about previous buildings, trees or past activities on the site, or should changes be made to the building type, size and or/position, this report may be made obsolete, irrelevant or unsuitable. In such cases, Intrax will not accept any liability for the consequences and Intrax reserves the right to make an additional charge if more testing or a change to the report is necessary.

2. The recommendations made in this report may need to be reviewed should any site works disturb any soil 200mm below the proposed founding depth.

3. The descriptions of the soils encountered in the boreholes follow those outlined in AS1726-1993; Geotechnical Site Investigations. Colour descriptions can vary with soil moisture content and individual interpretation.

4. If the site conditions at the time of construction differ from those described in this report then Intrax must be contacted so a site inspection can be carried out prior to any footing being poured. The owner/builder will be responsible for any fees associated with this additional work.

5. This report assumes that the soil profile observed in the boreholes are representative of the entire site. If the soil profile and site conditions appear to differ substantially from those reported herein, then Intrax should be contacted immediately and this report may need to be reviewed and amended where appropriate. The owner/builder will be responsible for any fees associated with this additional work.

6. The user of this report must take into account the following limitations. Soil and drilling depths are given to a tolerance of +/- 200mm. Where spot levels or a feature survey have been undertaken, levels are given a tolerance of +/- 200mm.

    It must be understood and a condition of acceptance of this report is that whilst every effort is made to identify fill material across the site, difficulties exist in determining fill material, in particular, for example, well compacted site or area derived fill, when utilising a small diameter auger. Consequently Intrax emphasises that we will not be responsible for any financial losses, consequential or otherwise, that may occur as a result of not accurately determining the fill profile across the site.

7. Finally, no responsibility will be taken for this report if it is altered in any way or is not reproduced in full.

8 References

STANDARDS/REGULATIONS:

EPA (2016), Code of Practice Onsite Wastewater Management, Publication number 891.4, Environmental Protection Agency, Jul 2016

Standards Australia/Standards New Zealand (2012), On-site domestic wastewater management, AS/NZS 1547-2012, Standards Australia/Standards New Zealand, Sydney/Wellington, Retrieved from SAI Global

PUBLICATIONS:

MAV (2014), Victorian Land Capability Assessment Framework, Edition 2, Municipal Association of Victoria, Jan 2014

ONLINE SOURCES OF INFORMATION/DATA:

www.bom.gov.au, ([Publish Date])

http://nremap-sc.nre.vic.gov.au/MapShare.v2/imf.jsp?site=water, ([Publish Date])

http://mapshare2.dse.vic.gov.au/MapShare2EXT, ([Publish Date])

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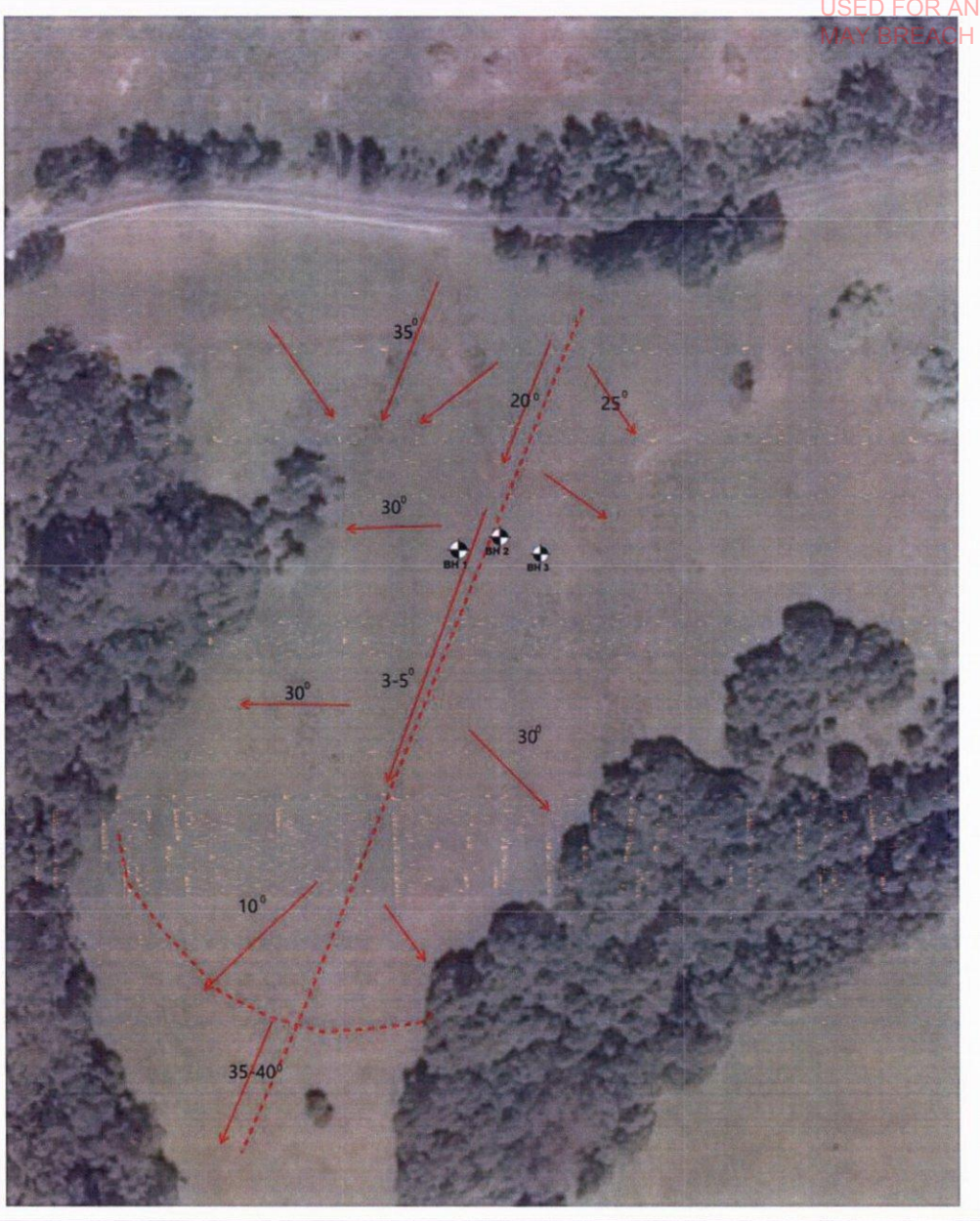
Appendix A

Site Plan

D19/11590



Client: Achor Homes

Project: Lot. 3, No. 3935, Great Ocean Road, Johanna, Vic, 3238

Drawing: Site Plan-LCA

Scale (A4): Not to scale

Date: 6.12.2018

Sheets: 1

Project No. 116009

Ver. 1

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Appendix B

Site and Soil Assessment Matrix

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Site Characteristic	Level of Constraint		
	Nil or Minor [1]	Moderate [2]	Major [3]
Aspect (affects solar radiation received)	North / North-East / North-West	East / West / South-East / South-West	South
Climate (difference between annual rainfall and pan evaporation)	Excess of evaporation over rainfall in the wettest months	Rainfall approximates to evaporation	Excess of rainfall over evaporation in the wettest months
Erosion and Landslip (or potential)	Nil or minor	Moderate	High or Severe
Exposure to sun and wind	Full sun and/or high wind or minimal shading	Dappled light	Limited patches of light and little wind to heavily shaded all day
Fill (imported)	No fill or minimal fill, or fill is good quality topsoil	Moderate coverage and fill is good quality	Extensive poor quality fill and variable quality fill
Flood frequency (ARI)	Less than 1 in 100 years	Between 100 and 20 years	More than 1 in 20 years
Groundwater bores	No bores onsite or on neighbouring properties	Setback distance from bore complies with requirements in EPA Code of Practice 891.3 (as amended)	Setback distance from bore does not comply with requirements in EPA Code of Practice 891.3 (as amended)
Land area available for LAA (setbacks)	Exceeds LAA and duplicate LAA and buffer distance requirements	Meets LAA and duplicate LAA and buffer distance requirements	Insufficient area for LAA
Rock outcrops (% of surface)	<10%	10-20%	>20%
Slope Form (affects water shedding ability)	Convex or divergent side-slopes	Straight side-slopes	Concave or convergent side-slopes
Slope gradient [6] (%)			
(a) for absorption trenches and beds	<6%	6-15%	>15%
(b) for surface irrigation	<6%	6-10%	>10%
(c) for subsurface irrigation	<10%	10-30%	>30%
Soil Drainage (qualitative)	No visible signs or likelihood of dampness, even in wet season	Some signs or likelihood of dampness	Wet soil, moisture-loving plants, standing water in pit; water ponding on surface, soil pit fills with water
Stormwater run-on	Low likelihood of stormwater run-on		High likelihood of inundation by stormwater run-on
Surface waters - setback distance (m)	Setback distance complies with requirements in EPA Code of Practice 891.3 (as amended)		Setback distance does not comply with requirements in EPA Code of Practice 891.3 (as amended)
Vegetation coverage over the site	Plentiful vegetation with healthy growth and good potential for nutrient uptake	Limited variety of vegetation	Sparse vegetation or no vegetation
Existing Septic System	Nil		Existing Septic system on the site

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Site Characteristic	Nil or Minor [1]		Moderate [2]	Major [3]	
Soil Drainage (Field Handbook definitions)	Rapidly drained. Water removed from soil rapidly in relation to supply, excess water flows downward rapidly. No horizon remains wet for more than a few hours after addition	Well drained. Water removed from the soil readily, excess flows downward. Some horizons may remain wet for several days after addition	Moderately well drained. Water removed somewhat slowly in relation to supply, some horizons may remain wet for a week or more after addition	Imperfectly drained. Water removed very slowly in relation to supply, seasonal ponding, all horizons wet for periods of several months, some mottling	Poorly/Very poorly drained. Water remains at or near the surface for most of the year, strong gleying. All horizons wet for several months

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Appendix C

Climate Data

Locality	Longitude	Latitude	70th Percentile Rainfall	Median Annual Wet Months	Average Rainfall	Average ET_o	Rainfall January	ET_o January	Rainfall February	ET_o February	Rainfall March	ET_o March	Rainfall April	ET_o April	Rainfall May	ET_o May	Rainfall June	ET_o June	Rainfall July	ET_o July	Rainfall August	ET_o August	Rainfall September	ET_o September	Rainfall October	ET_o October	Rainfall November	ET_o November	Rainfall December	ET_o December
Alvie (& Warrion)	143.5E	38.2S	641	5	588	928	32	143	31	118	35	97	48	59	53	36	57	24	58	28	66	40	61	59	61	87	47	106	40	130
Barongarook	143.6E	38.4S	1,007	7	929	863	44	133	41	110	62	91	73	54	86	34	98	22	108	26	106	37	99	55	97	81	69	98	57	121
Barramunga	143.7E	38.6S	1,561	8	1,432	790	65	122	63	100	82	82	119	50	133	30	167	20	168	23	170	34	149	50	133	75	99	91	84	112
Barwon Downs	143.8E	38.5S	1,048	7	969	846	44	129	44	106	55	88	77	54	90	33	110	22	109	25	117	37	101	55	92	81	69	97	59	119
Beeac	143.6E	38.2S	644	4.5	576	932	32	144	31	118	36	98	46	59	51	36	55	25	56	28	63	41	59	60	59	88	47	106	40	131
Beech Forest[1]	143.56E	38.62S	2,046	11	1,748	804	88	121	91	100	114	83	179	51	208	32	242	21	233	25	244	38	213	53	187	77	134	93	114	112
Birregurra (& outskirts)	143.8E	38.3S	681	5	614	915	32	138	31	114	38	95	47	59	57	37	61	25	63	27	69	41	64	59	63	86	49	104	41	129
Carlisle River	143.4E	38.6S	1,257	7	1,161	860	53	129	50	106	67	88	94	55	120	35	123	24	135	27	143	40	118	57	107	83	81	98	69	118
Chapple Vale	143.3E	38.6S	1,105	7	1,038	890	49	131	46	108	61	91	85	58	105	38	109	26	121	29	128	43	105	60	94	85	74	101	62	121
Cororooke and Coragulac	143.5E	38.3S	740	5	665	911	34	140	33	115	39	95	54	58	61	36	67	24	69	27	78	40	69	58	68	86	51	104	43	128
Cressy	143.7E	38.1S	602	4	543	951	32	146	32	120	34	99	44	61	48	37	49	25	50	29	57	42	55	61	56	89	46	108	42	134
Forrest	143.7E	38.5S	980	6	910	865	42	131	41	108	51	89	72	55	85	34	101	23	102	26	115	39	95	56	86	83	66	99	54	121
Gellibrand	143.6E	38.5S	1,005	6	928	875	44	133	40	109	53	90	73	56	90	35	101	23	105	26	117	39	97	57	88	83	66	100	55	122
Hordern Vale	143.6E	38.8S	1,160	7	1,088	852	52	123	50	101	68	85	88	56	105	37	117	26	124	29	135	42	109	59	98	83	78	97	64	115
Johanna (& Glenaire)	143.3E	38.8S	1,016	6	951	881	45	126	43	103	58	88	76	58	98	39	108	28	109	31	118	45	94	61	83	85	64	100	54	118
Kawarren	143.5E	38.5S	1,052	7	956	886	44	133	41	110	54	91	78	57	93	36	102	24	109	27	120	40	99	58	90	84	68	101	58	123
Kennett River	143.9E	38.7S	981	6	897	897	43	129	45	106	57	90	71	58	85	39	91	28	98	32	110	44	93	61	84	87	65	102	54	121
Marengo	143.7E	38.8S	1,050	7	989	882	49	126	48	103	64	88	80	57	93	38	101	28	109	32	123	45	100	61	90	85	71	100	59	119
Pirron Yallock (& Larpent)	143.4E	38.3S	746	5	673	913	34	140	33	115	39	96	55	58	63	36	67	24	71	28	79	40	70	59	67	86	52	104	44	127
Skenes Creek North (& Tanybryn)	143.7E	38.7S	1,059	6	965	892	49	129	49	106	64	89	77	58	92	38	101	27	104	31	117	44	97	61	88	86	70	101	57	121
Wattle Hill	143.2E	38.8S	965	6	905	881	41	126	40	103	53	88	74	58	92	39	107	28	107	31	111	45	89	61	79	85	60	100	51	117
Wongarra & Sugarloaf	143.8E	38.7S	974	6	893	901	44	130	46	106	59	90	72	58	86	39	92	28	96	32	109	45	91	62	82	87	64	102	53	122
Wyelangta[2]	143.45E	38.66S	2,279	11	1,947	804	108	121	108	100	125	83	192	51	232	32	231	22	206	25	274	36	221	52	207	77	172	93	142	112

70th Percentile rainfall System Sizing Tables completed for townships shown in bold font - Appendix B of Technical Document.
70th Percentile rainfall Water Balances NOT completed for localities shown in normal font - information included for LCA assessors and Council staff - for water balance as part of a LCA, the closest climate locality should be used.
The localities of Lavers Hill, Weeaproinah, Beech Forest, Wyelangta and Barham River Catchment do not have any suitable water balances as detailed in their respective Locality reports (Appendix B Technical Document) and Section 7 of the Technical Document. As part of a detailed or comprehensive LCA, site specific designs warrant the use of appropriate Otway Ridge rainfall data from the Bureau of Meteorology. 70th percentile rainfall data from BOM stations 90006[1] Beech Forest and 90087[2] Wyelangta stations was obtained and the closest BOM station must be used for any locality within the Otway Ridge (i.e. Weeaproinah uses Beech Forest and Lavers Hill uses Wyelangta). The closest SILO ET_o data was used for both of these BOM stations; Beech Forest and Wyelangta.

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Appendix D

Water Balance

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Victorian Land Capability Assessment Framework

Please read the attached notes before using this spreadsheet

Irrigation area sizing using Nominated Area Water Balance for Zero Storage

Site Address:	Lot. 3, No. 3935, Great Ocean Road, Johanna, Vic, 3238		
Date:	07.12.2018	**Assessor:**	Evan Jeremiejczyk

INPUT DATA

Design Wastewater Flow	Q	480	L/day	Based on maximum potential occupancy and derived from Table 4 in the EPA Code of Practice (2013)
Design Irrigation Rate	DIR	3.5	mm/day	Based on soil texture class/permeability and derived from Table 9 in the EPA Code of Practice (2013)
Nominated Land Application Area	L	149	m^2	[1]
Crop Factor	C	0.6-0.8	unitless	Estimates evapotranspiration as a fraction of pan evaporation; varies with season and crop type[2]
Rainfall Runoff Factor	RF	0.7		Proportion of rainfall that remains onsite and infiltrates, allowing for any runoff
Mean Monthly Rainfall Data		Johanna		BoM Station and number
Mean Monthly Pan Evaporation Data		Johanna		BoM Station and number

Parameter	Symbol	Formula	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Days in month	D		days	31	28	31	30	31	30	31	31	30	31	30	31	365
Rainfall	R		mm/month	45	43	58	79	96	108	109	118	94	83	64	54	951
Evaporation	E		mm/month	126	103	88	58	39	28	31	45	61	85	100	118	882
Crop Factor	C		unitless	0.80	0.80	0.70	0.70	0.60	0.60	0.60	0.60	0.70	0.80	0.80	0.80	
OUTPUTS																
Evapotranspiration	ET	ExC	mm/month	101	82	62	41	23	17	19	27	43	68	80	94	656.3
Percolation	B	DIRxD	mm/month	108.5	98	108.5	105.0	108.5	105.0	108.5	108.5	105.0	108.5	105.0	108.5	1277.5
Outputs		ET+B	mm/month	209.3	180.4	170.1	145.6	131.9	121.8	127.1	135.5	147.7	176.5	185.0	202.9	1933.8
INPUTS																
Retained Rainfall	RR	RxRF	mm/month	29.25	27.95	37.7	51.35	62.4	70.2	70.85	76.7	61.1	53.95	41.6	35.1	618.15
Applied Effluent	W	(QxD)/L	mm/month	99.9	90.2	99.9	96.6	99.9	96.6	99.9	99.9	96.6	99.9	96.6	99.9	1175.8
Inputs		RR+W	mm/month	129.1	118.2	137.6	148.0	162.3	166.8	170.7	176.6	157.7	153.8	138.2	135.0	1794.0
STORAGE CALCULATION																
Storage remaining from previous month			mm/month	0.0	0.0	0.0	0.0	2.4	32.8	77.8	121.4	162.5	172.5	149.8	103.1	
Storage for the month	S	(RR+W)-(ET+B)	mm/month	-80.2	-62.2	-32.5	2.4	30.4	45.0	43.6	41.1	10.0	-22.7	-46.8	-67.9	
Cumulative Storage	M		mm	0.0	0.0	0.0	2.4	32.8	77.8	121.4	162.5	172.5	149.8	103.1	35.2	
Maximum Storage for Nominated Area	N		mm	172.53												
	V	NxL	L	25707												
LAND AREA REQUIRED FOR ZERO STORAGE			m^2	83	88	112	153	214	279	265	253	166	121	100	89	

MINIMUM AREA REQUIRED FOR ZERO STORAGE: 280.0 m^2

CELLS

	Please enter data in blue cells
XX	Red cells are automatically populated by the spreadsheet
XX	Data in yellow cells is calculated by the spreadsheet, DO NOT ALTER THESE CELLS

NOTES

[1] This value should be the largest of the following: land application area required based on the most limiting nutrient balance or minimum area required for zero storage

[2] Values selected are suitable for pasture grass in Victoria

Victorian Land Capability Assessment Framework

Please read the attached notes before using this spreadsheet

Nitrogen Balance

Site Address:	Lot. 3, No. 3935, Great Ocean Road, Johanna, Vic, 3238

SUMMARY - LAND APPLICATION AREA REQUIRED BASED NITROGEN BALANCE 159 m^2

INPUT DATA[1]

Wastewater Loading			Nutrient Crop Uptake				
Hydraulic Load	480	L/day	Crop N Uptake	220	kg/ha/yr	which equals	60.27 $mg/m^2/day$
Effluent N Concentration	25	mg/L					
% N Lost to Soil Processes (Geary & Gardner 1996)	0.2	Decimal					
Total N Loss to Soil	2400	mg/day					
Remaining N Load after soil loss	9600	mg/day					

NITROGEN BALANCE BASED ON ANNUAL CROP UPTAKE RATES

Minimum Area required with zero buffer			Determination of Buffer Zone Size for a Nominated Land Application Area (LAA)		
Nitrogen	159	m^2	Nominated LAA Size	149	m^2
			Predicted N Export from LAA	0.23	kg/year
			Minimum Buffer Required for excess nutrient	10	m^2

CELLS

	Please enter data in blue cells
XX	Red cells are automatically populated by the spreadsheet
XX	Data in yellow cells is calculated by the spreadsheet, DO NOT ALTER THESE CELLS

NOTES

[1] Model sensitivity to input parameters will affect the accuracy of the result obtained. Where possible site specific data should be used. Otherwise data should be obtained from a reliable source such as:

- *EPA Guidelines for Effluent Irrigation*
- *Appropriate Peer Reviewed Papers*
- *Environment and Health Protection Guidelines: Onsite Sewage Management for Single Households*
- *USEPA Onsite Systems Manual*

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Appendix E

Percolation Test Report

D19/11590

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AS/NZS 1547 - APPENDIX G

Talsma Hallam Permeameter

Project	116009
Location	Lot. 3, No. 3935, Great Ocean Road, Johanna, Vic, 3238
Test Site	Refer to site plan
Date	29.11.2018
Operator	James Horne

Permeameter No # (GEOLAB REF)	1	Pipe Radius (r2)	2.5 cm	
Depth of auger hole (D)	60 cm			5
Depth of water in auger hole (H)	20 cm			
Average radius of hole (-r)	5 cm		78.53981634 area	25
Depth to any impermeable layer (S)	10 cm			

Vegetation at site	Pasture
Time elapsed between first filling and start of measurement	10 minutes
Soil moisture description	moist

General Comments about test site:

Permeameter and Time Readings

TIME INTERVAL 0:02:00

	Test #1				Test #2			
READING NO#	TIME	LEVEL IN TUBE (CM)	DROP IN LEVEL	Infiltration Rate (cm3/min)	TIME	LEVEL IN TUBE (CM)	DROP IN LEVEL	Infiltration Rate (cm3/min)
	0:00:00	115.5			0:00:00	108.5		
	0:02:00	108.2	7.30	71.63	0:02:00	95.5	13	127.5625
	0:04:00	101	7.20	70.65	0:04:00	81	14.5	142.28125
	0:06:00	94.5	6.50	63.78	0:06:00	68	13	127.5625
	0:08:00	88.5	6.00	58.88	0:08:00	56.5	11.5	112.84375
	0:10:00	83	5.50	53.97	0:10:00	44	12.5	122.65625
	0:12:00	76.5	6.50	63.78	0:12:00	33.5	10.5	103.03125
	0:14:00	71.5	5.00	49.06	0:14:00	26	7.5	73.59375
	0:16:00	67	4.50	44.16	0:16:00	18	8	78.5
	0:18:00	62.2	4.80	47.10	0:18:00	11	7	68.6875
Q		58.14128071 cm/min						

sum fall	53.3000	cm
sum time	18.0000	mins
Q	58.1413	cm3/min
	105.6034	
	2513.2741	
kSat	**0.0420**	cm/min
	0.6051	m/day

sum fall	97.5000	cm
sum time	18.0000	mins
Q	106.3560	cm3/min
	193.1769	
	2513.2741	
kSat	**0.0769**	cm/min
	1.1068	m/day

FORM A — Geotechnical Declaration and Verification Development Application

Section 4 — List of Drawings referenced in Geotechnical Assessment and/or Landslip Risk Assessment

Design Documents	Description	Plan or Document No.	Revision or Version No.	Date	Author
	Anchor Homes	N/A	PD-E	30.10.2018	AK

Section 5 — Declaration

Declaration (Tick all that apply)		
☒ Yes	☐ No	I am a geotechnical engineer or engineering geologist as defined by the Colac Otway Planning Scheme and on behalf of the company below:
☒ Yes	☐ No	I am aware that the Geotechnical Assessment and/or Landslip Risk Assessment I have either prepared or am technically verifying (referenced above) is to be submitted in support of a planning application for the proposed development site (referenced above) and its findings will be relied upon by the Colac Otway Shire Council in determining the planning application
☒ Yes	☐ N/A	I prepared the Geotechnical Assessment and/or Landslip Risk Assessment referenced above in accordance with the Colac Otway Planning Scheme and the AGS Guidelines 2007 as defined in the planning scheme.
☒ Yes	☐ N/A	I technically verify that the Geotechnical Assessment and/or Landslip Risk Assessment referenced above has been prepared in accordance with the Colac Otway Planning Scheme and the AGS Guidelines 2007 as appropriate.
☒ Yes	☐ No	I technically verify that the Geotechnical Assessment prepared for the planning application for the site confirms the land can meet the acceptable risk criteria specified in the schedule to Clause 44.01 of the Colac Otway Planning Scheme taking into account the total development and site disturbance proposed.
☒ Yes	☐ No ☐ N/A	I technically verify that the Landslip Risk Assessment prepared for the planning application for the site confirms the land can meet the tolerable risk criteria specified in the schedule to Clause 44.01 of the Colac Otway Planning Scheme taking into account the total development and site disturbance proposed.

Section 6 — Geotechnical Engineer or Engineering Geologist Details

Company/ Organisation Name	Intrax Consulting Engineers	
Name (Company Representative)	Surname: Emmett	Dr / Mr / Mrs / Ms / Miss
	Given Name(s)	Christopher Scott
	Chartered Professional Status	Registration Number 5289(MAIG)
Signature	Scott Emmett	Dated: 6 / 12 / 2018

Reference: AGS Guidelines 2007c *"Practice Note Guidelines for Landslide Risk Management"*, Australian Geomechanics Society, Australian Geomechanics. V42. N1 March 2007.

Note: N/A = Not Applicable

D19/11590

Fireguard AUSTRALIA

BPAD3 BUSHFIRE CONSULTANT

BMS19055

3970 Great Ocean Road Johanna

25-Dec-2019

Rev C

25-Dec-2019

Rev C

BMS19055

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BUSHFIRE MANAGEMENT STATEMENT

Information Table

Application Pathway	Pathway 2 Bushfire Protection Objectives
Document ID	**BMS19055**
Property Address	3970 Great Ocean Road Johanna
Lot & Plan Number	Plan PC352134
Area	76.12ha
Council	COLAC OTWAY
Applicant	
Name	BEN HOODLESS & PENNY HEARD
Phone	
Email	
Address	
Agent	
Company	Anchor Homes
Contact	Mindy McEwen
Phone	03 5145 7110
Email	mindy@anchorhomes.com.au
Address	55 Industrial Road, Stratford VIC 3862
Fireguard Australia	
Consultant	David Heath
Mobile	0439 393 712
Email	david@heathdesign.com.au
Postal	PO Box 5020 HEATHWOOD Ringwood 3134

Revision	*Date*	*Details*
B	17-Dec-2018	Client proposed Driveway Access Path
C	25-Jan-2019	Council Approved Driveway Access Path

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FPAA Membership Number 31580 | FPAA Accredited Practitioner BPAD30269 - BPAD Level 3

BPAD Bushfire Planning & Design Accredited Practitioner Level 3

FPA AUSTRALIA SILVER MEMBER Fire Protection Association Australia

Fireguard

BPAD3 BUSHFIRE CONSULTANT

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BPAD3 BUSHFIRE CONSULTANT

BPAD Bushfire Planning & Design Accredited Practitioner Level 3

FPA Fire Protection Association Australia SILVER MEMBER

BPAD3 BUSHFIRE CONSULTANT

Bushfire Management Statement (BMS)

1. Introduction

This Bushfire Management Statement has been prepared in response to the requirements of Clause 44.06-2 – Bushfire Management Overlay, and in accordance with the application requirements of Clause 53.02 – Bushfire Planning

This is a Pathway 2 application - Bushfire Protection Objectives.

1.1 Preparation of this report

This report was prepared by:	David Heath
Accredited Practitioner	BPAD3
FPA Australia Accreditation No:	BPAD30269

1.2 Notes pertaining to the compilation of this report

The site assessment was conducted on:	1st December 2018
The owner was:	not at the site.

2. Project Outline

2.1 Project Description

New single story dwelling situated on a large rural lot

3. Site Details

3.1 Council Details

Name	COLAC OTWAY	
Postal	PO Box 283, Colac, Victoria 3250	
Address	2-6 Rae Street, Colac	
Telephone	(03) 5232 9400	
Email	inq@colacotway.vic.gov.au	

3.2 Zoning Details

Note	In addition to the Bushfire Management Overlay (BMO) this site is subject to the following planning zone:
Overlay and Zone Classification	**FARMING ZONE (FZ)** **EROSION MANAGEMENT OVERLAY (EMO)**
Special Condition	

4. Project Proposal Drawings

The Client has provided: 1 Plan drawings of the proposed construction.
The Client has provided: 1 Plan drawings of the site.

4.1 Drawing Register

Title	Date	Revision
190124_PreliminaryWorkingDrawings_PD-F_Hoodless&Heard.pdf	24-Jan-2019	PDF

5. Reference VPPs

Clause 44.06 Bushfire Management Overlay

Clause 53.02 Bushfire Planning

6. Application Pathway and relevant Clause 53.02 objectives and measures

For the purposes of addressing clause 53.02, clause 53.02-2 applies which is for all other applications where:

The checklist below identifies those objective and approved measures that have been addressed, and are applicable to the Bushfire Management Statement for this proposal.

This is a Pathway 2 application - Bushfire Protection Objectives

Approved Measure/ Alternative Measure	Applicable	Relevant Table and Clause
Cl 53.02 -4.1: Landscape siting and design objectives		
AM 2.1 Bushfire risk to the development	YES	NIL
AM 2.2 Siting of Building	YES	maximum separation, public road proximity & Access by emergency services
AM 2.3 Design of Building	YES	NIL
Cl 53.02 -4.2: Defendable space and construction objective		
AM 3.1 Defendable space for a dwelling (including an extension or alteration to a dwelling), a dependant person's unit, industry, office or retail premises	YES	Column A, B, C, or if siting constraints, D of Table 2 of cl 53.02-5
AM3.2 Defendable space for accommodation other than a Dwelling	NO	Table 3 of cl 53.02-5
Alternative Measures		
AltM 3.3 Defendable space includes adjoining land	NO	Table 2 of cl 53.02-5
AltM 3.4 Method 2 of AS3959	NO	AS3959: 2009
AltM 3.5 A dwelling assessed to be high Risk site &/or FZ	NO	Table 2 of cl 53.02-5 Only applies if AM3.1 cannot be met
AltM 3.6 Accommodation & integrated Fire Management	NO	Table 3 of cl 53.02-5

Approved Measure/ Alternative Measure (Continued)	Applicable	Relevant Table and Clause
Cl 53.02 -4.3: Water supply and access objectives		
AM 4.1 : Water and access for Dwelling	YES	Water - Table 4; Access - Table 5 of cl 53.02-5
AM 4.2: Water, access & risk management for accommodation	NO	Water - cl 53.02-4 : AM4.2; Access- Table 5 of cl 53.02-5
7. Information Required for Application Submission		
In consideration of the BMO and Clause 53.02, the report comprises of 2 parts;		
BMS Bushfire Managment Statement, including		
Appendix 1: Bushfire Management Plan		
BHSA: Bushfire Hazard Site Assessment		
Appendix 2: Client Proposal Development Drawings		
NIL		
NIL		

Below Banner displayed onsite during site assessment

8. Clause 53.02-4: Bushfire protection objectives

8.1 Clause 53.02-4.1: Landscape, siting and design objectives

8.1.1 Approved Measure - AM2.1 Landscape bushfire risk

Clause 53.02 -4.1: Landscape, siting and design objectives

Objective	Development is appropriate having regard to the nature of the Bushfire risk arising from the surrounding landscape. Development is sited to minimise the risk of bushfire. Development is sited to provide safe access for vehicles, including emergency vehicles. Building design minimises vulnerability to bushfire attack.

Approved Measure - AM2.1 Landscape bushfire risk

Requirements	The bushfire risk to the development from the landscape beyond the site can be mitigated to an acceptable level.
Response	The landscape has a very high to extreme bushfire risk and there is the potential for bushfires that can damage the locality. The risk to the development is mitigated to an acceptable level by: • Building to a higher BAL that mitigates against ember attack. • The proximity of towns to the north and south east which can provide for safety. • The proximity of fire fighting resources in the region, The development in consideration of the risk mitigation is appropriate.

Conclusion

Satisfies Approved Measure.

8.1.2 Approved Measure - AM2.2 Siting of Building

Clause 53.02 -4.1: Landscape, siting and design objectives

Approved Measure - AM2.2 Siting of Building

Requirements	A building is sited to ensure the site best achieves the following; • The maximum separation distance between the building and the bushfire hazard. • The building is in close proximity to a public road. • Access can be provided to the building for emergency service vehicles.
Response	The building has adequate separation to allow for appropriate defendable space to be implemented within the site boundaries. The building is in close proximity to the public road on the west boundary that leads directly onto the main road network of the area. Access is available for emergency vehicles. Some improvement is required however these can be readily implemented.

Conclusion

Satisfies Approved Measure.

8.1.3 Approved Measure - AM2.3 Building Design

Clause 53.02 -4.1: Landscape, siting and design objectives

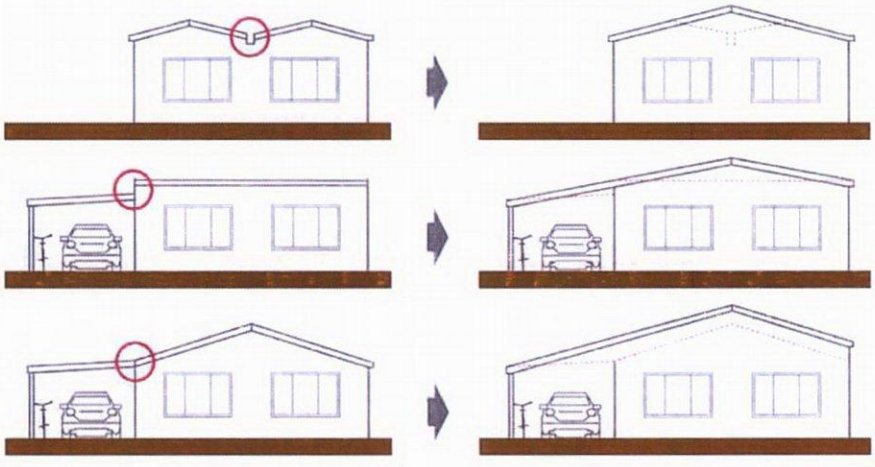
Approved Measure - AM2.3 Building Design

Requirements	A building is designed to be responsive to the landscape risk and reduce the impact of bushfire on the building.
Response	The building is to be designed where possible to minimise ember entry - i.e. avoid re-entrant corners, complex roof lines. Refer to diagrams below:

Existing complex roof design ***Improved roof design***

Roof Design Considerations

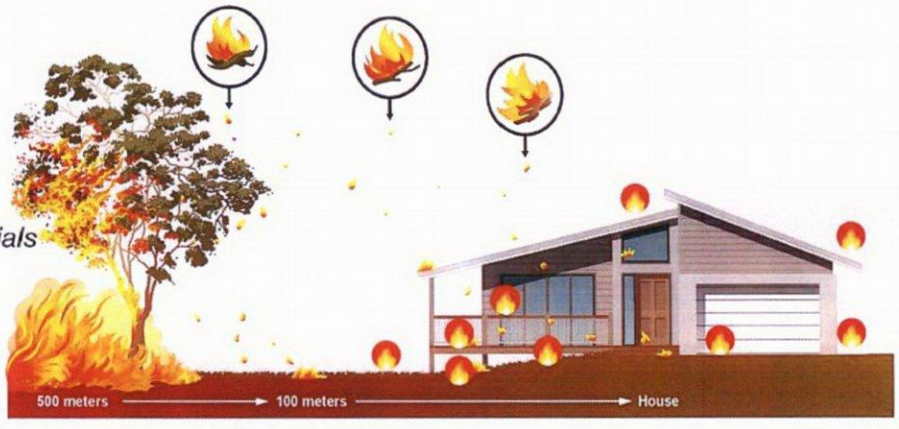
Central gutters
Open ended gables
Junction points



Building Design should minimise ember hazards released from surrounding Landscape during Busjfire attack

Ember Hazards

Re-entrant corners
Complex roof lines
Gaps between building materials
Unclosed unerfloor space



Conclusion

Satisfies Approved Measure.

8.2.1 Approved Measure - AM3.1 Defendable space	
Clause 53.02 -4.2: Defendable space and construction objective	
Objective	Defendable space and building construction mitigate the effect of flame contact, radiant heat and embers on buildings.
Approved Measure - AM3.1 Defendable space	
Requirements	A building used for a dwelling (including an extension or alteration to a dwelling), a dependant person's unit, industry, office or retail premises is provided with defendable space in accordance with: • Table 2 Columns A, B or C and Table 6 to Clause 53.02-4 wholly within the title boundaries of the land; or • If there are significant siting constraints, Table 2 Column D and Table 6 to Clause 53.02-5. The building is constructed to the bushfire attack level that corresponds to the defendable space provided in accordance with Table 2 to Clause 53.02-5.
Response	Refer to the BAL calculations in the direction of west and south to method 1 - pages 13 and 14. The required BAL for the building is determined by the hazards to the NE and east. The building is constructed to the bushfire attack level that corresponds to the defendable space provided in accordance with table 2 to cl. 53.02 - 5. Refer to the BAL Calculations on pages 13 - 14. The defendable space is 49m to the east and south, and 15m to the norh and west. The defendable space is wholly within the title boundaries of the site.

Conclusion
Satisfies Approved Measure.

8.2.2 BAL Calculations: Method 1 - Defendable Space & Construction Rating				
METHOD 1				
Step 1	**Determine the assessment area and the defendable space standard that applies.**			
Note	**The assessment area comprises an area of 150 metres around the selected site. The site refers to the proposed building envelop or works.**			
Step 2	**Classify the vegetation, distance and slope.**			
Step 3	Determine your defendable space and corresponding BAL.			
	North	**West**	**South**	**East**
Vegetation Type A	Grassland	Grassland	Grassland	Grassland
Exclusions				
Distance from the site boundary to vegetation	**0m**	**0m**	**0m**	**0m**
Flat/Upslope or Downslope	>15°-20°	>10°-15°	>15°-20°	>5°-10°
Vegetation Type B	-	-	Forest	Forest
Exclusions				
Distance from the site boundary to vegetation			**85m**	**85m**
Flat/Upslope or Downslope	-	-	Upslope	>10°-15°
Vegetation Type C	-	-	-	-
Exclusions				
Distance from the site boundary to vegetation				
Flat/Upslope or Downslope	-	-	-	-
Combined	**North**	**West**	**South**	**East**
BAL				**19**

The highest BAL and associated defendable space is recorded below:

METHOD 1

BAL	**29**
Defendable Zone	**49 south & east, 15m north & west Metres**

Summary

The main hazard is the forest to the ENE which is 85m from the planned location

The M1 BAL calculations indicate BAL19 for the forest hazard. In consideration of the extreme landscape risk an higher BAL rating of BAL29 is justified

The defendable space is in accordance with:

• Table 2 Columns and Table 6 to Clause 53.02-3 wholly within the title boundaries of the land; and is to be 49m to the south and east. 49m is a more practical in consideration of the slope downwards to the south.

Defendable Space to the north and west can be less, ie 15m and 9m respectively. To simplify 15m in those directions

Refer to the defendable space working diagram on page 20.

The defendable space is wholly on the site.

The BAL rating is 29

8.2.3 Approved Measure - AM3.2 Defendable space	
Clause 53.02 -4.2: Defendable space and construction objective	
Approved Measure - AM3.2 Defendable space	
Requirements	A building used for accommodation (other than a dwelling or dependent person's unit), a child care centre, an education centre, a hospital, leisure and recreation or a place of assembly is: • Provided with defendable space in accordance with Table 3 and Table 6 to Clause 53.02-5 wholly within the title boundaries of the land. • Constructed to a bushfire attack level of BAL12.5.
Response	Not applicable to this application.
Conclusion	
Satisfies Approved Measure.	

8.2.4 Alternative Measure - AltM 3.3 Defendable space on adjoining land	
Clause 53.02 -4.2: Defendable space and construction objective	
Alternative Measures - AltM 3.3 Defendable space on adjoining land	
Requirements	Adjoining land may be included as defendable space where there is a reasonable assurance that the land will remain or continue to be managed in that condition as part of the defendable space.
Response	Not used for this application.
Conclusion	
Satisfies Approved Measure.	

8.2.5 Alternative Measure - AltM 3.4 Method 2, AS 3959 for Defendable Space & BAL

Clause 53.02 -4.2: Defendable space and construction objective

Alternative Measures - AltM 3.4 Method 2 - Defendable space & BAL

Requirements	A Defendable space and the bushfire attack level is determined using Method 2 of AS3959:2009 Construction of buildings in bushfire prone areas (Standards Australia) subject to any guidance published by the relevant fire authority.
Response	Not used in this application.

Conclusion

Satisfies Approved Measure.

8.2.6 Calculations: Method 2 - Defendable Space & Construction BAL Rating

METHOD 2 - Detailed Scientific Procedure (Refer AS3959-2009 Appendix B)

Step 1	**The relevant FDI or windspeed in accordance with Paragraph B2.**			
Re Cl 2.2.2	*Table 2.1*	*Measured Vegetation Type 1*	*FDI*	
		Measured Vegetation Type 2	*FDI*	
Step 2	**The vegetation classification, fuel loads and vegetation height in accordance with Paragraph B3.**			
Re Table 2.3	*Type 1 Vegetation is:*		*Type 2 Vegetation is:*	
	Type 1 Surface fuel load (w)		*Type 2 Surface fuel load (w)*	
	Type 1 Overall fuel load (w)		*Type 2 Overall fuel load (w)*	
	Type 1 Vegetation height (m)		*Type 2 Vegetation height (m)*	

	North	West	South	East
Step 3 - Type 1 Effective slope under the classified vegetation				
Step 3 - Type 2 Effective slope under the classified vegetation				
Step 4 - Type 1 Slope of the land between the site and the classified vegetation				
Step 4 - Type 2 Slope of the land between the site and the classified vegetation				
Step 5 - Type 1 Distance from the site boundary to vegetation				
Step 5 - Type 2 Distance from the site boundary to vegetation				

Method 2 BAL Calculator introduction notes

1. Using the above figures, the Method 2 BAL Calculator uses algorithms generated from appendix B of AS3959-2009. See next page.
2. The results are the quantification for Heat Flux and subsequent BAL rating for the given parameters.

8.2.7 Calculations: Method 2 - Defendable Space & Construction BAL Rating

METHOD 2 - BAL Calculator

	Measured Vegetation & Slope Type 1	Measured Vegetation & Slope Type 2
FDI		
Vegetation Classification		
Surface Fuel Load (t/ha)		
Overall Fuel Load (t/ha)		
Effective slope under the classified vegetation (degrees)		
Slope between the site and classified vegetation		
Distance of the site from classified vegetation (m)		
Flame Width (m)		
Flame Temperature (K)		
Flame Emissivity		
Ambient Temperature (K)		
Relative humidity		
Direction		
Rate of spread		
Slope ROS		
Flame angle		
View Factor		
Height of Receiver		
Path length		
Atmospheric Transmissivity		
Radiant heat flux		
Bushfire Attack Level		

These calculations determine the following Defendable Space requirements at the planned location:

Defendable Space requirements:

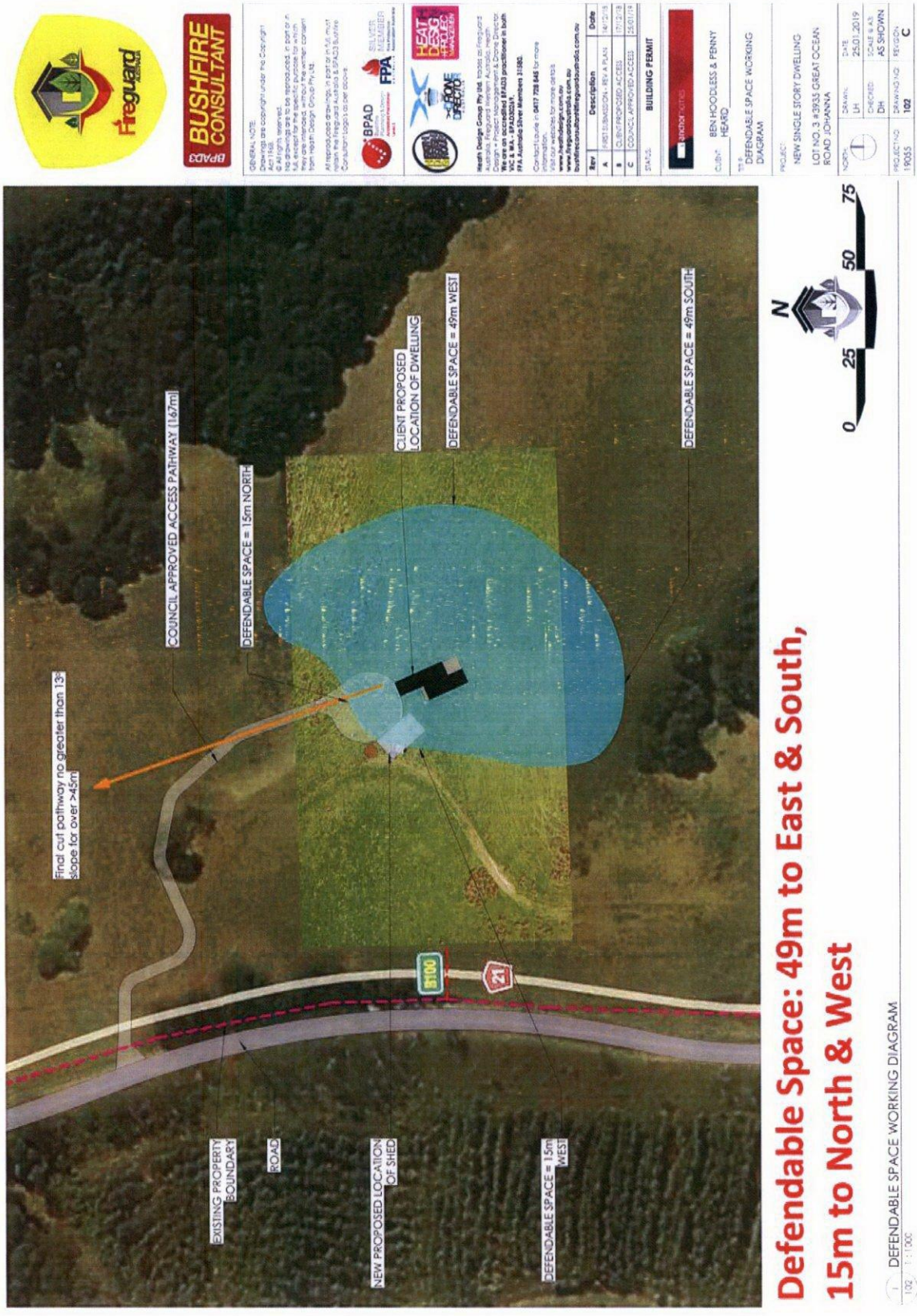
BAL rating	Inner Zone	Outer Zone

Summary

8.2.8 Alternative Measure - AltM 3.5 Defendable space to site boundary and BAL of FZ	
Clause 53.02 -4.2: Defendable space and construction objective	
Alternative Measures - AltM 3.5 Defendable space to site boundary and BAL of FZ	
Requirements	A building used for a dwelling (including an extension or alteration to a dwelling) may provide defendable space to the property boundary where it can be demonstrated that: • The lot has access to urban, township or other areas where: - Protection can be provided from the impact of extreme bushfire behaviour. - Fuel is managed in a minimum fuel condition. - There is sufficient distance or shielding to protect people from direct flame contact or harmful levels of radiant heat. • Less defendable space and a higher construction standard is appropriate having regard to the bushfire hazard landscape assessment. • The dwelling is constructed to a bushfire attack level of BAL FZ. This alternative measure only applies where the requirements of AM 3.1 cannot be met.
Response	Not used in this application.
Conclusion	
Satisfies Approved Measure.	

8.2.9 Assessment of Defendable Space Working Diagram

Defendable Space Working Diagram



8.2.10 Alternative Measure - AltM 3.6 Integrated Risk Management	
Clause 53.02 -4.2: Defendable space and construction objective	
Alternative Measures - AltM 3.6 Integrated Risk Management	
Requirements	A building used for a dwelling (including an extension or alteration to a A building used for accommodation (other than a dwelling or dependent person's unit), child care centre, education centre, hospital, leisure and recreation or place of assembly may provide defendable space in accordance with Table 2 Columns A, B or C and Table 6 to Clause 53.02-5 where it can be demonstrated that: • An integrated approach to risk management has been adopted that considers: - The characteristics of the likely future occupants including their age, mobility and capacity to evacuate during a bushfire emergency. - The intended frequency and nature of occupation. - The effectiveness of proposed emergency management arrangements, including a mechanism to secure implementation. • Less defendable space and a higher construction standard is appropriate having regard to the bushfire hazard landscape assessment.
Response	Not applicable to this submission
Conclusion	
Satisfies Approved Measure.	

8.3.1 Approved Measures - AM4.1 Water Supply (as specified in Table 4 to clause 53.02-5) and Access Objectives

Clause 53.02 -4.3: Water supply and access objectives

Approved Measure - AM4.1 Water supply & access objectives

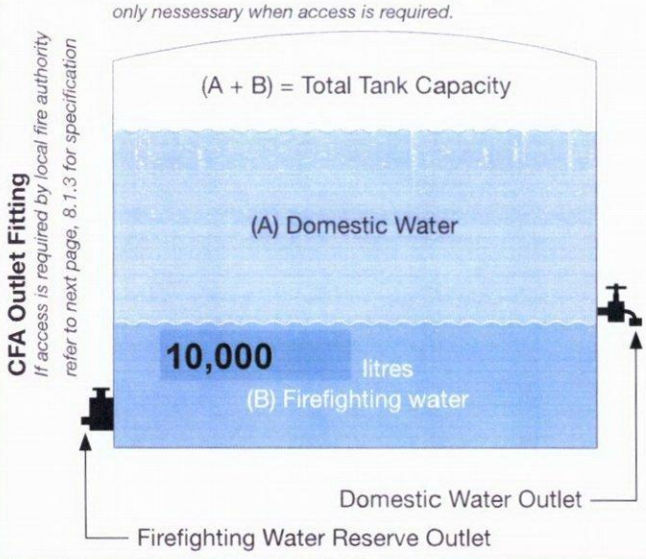
Response: Table 4 Water supply requirements for proposed Dwelling

Lot Sizes (Square metres)	Hydrant available	Capacity (litres)	Fire authority fittings and access required
1,001 and above	Not applicable	10,000	Yes

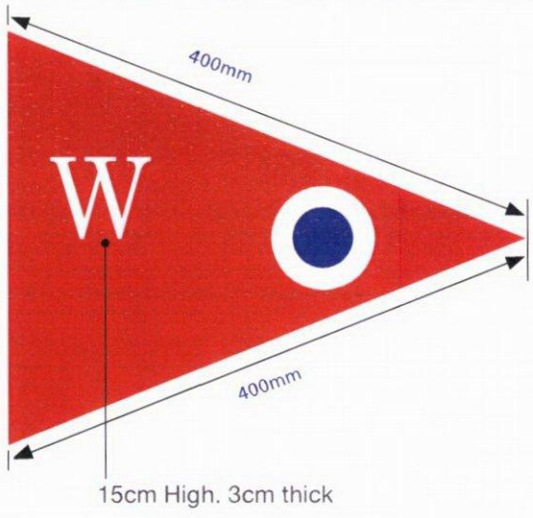
Water Supply Requirement Details & Diagram
The water supply if required should be identified with a marker flag;

The area of the site is 76.12Ha

Shared water tank
Specific Fire authority connection specifications only nessessary when access is required.



Water supply identification is nessessary only when direct access is required by the local fire authority



For all water tank capacities the following requirements apply:

- be stored in an above ground water tank constructed of concrete or metal
- have all fixed above ground water pipes and fittings required for firefighting purposes made of corrosive material, and
- include a separate outlet for occupant use.
- the water supply must be readily identifiable from the building or appropriate identification signage to the satisfaction of the relevant fire authority.

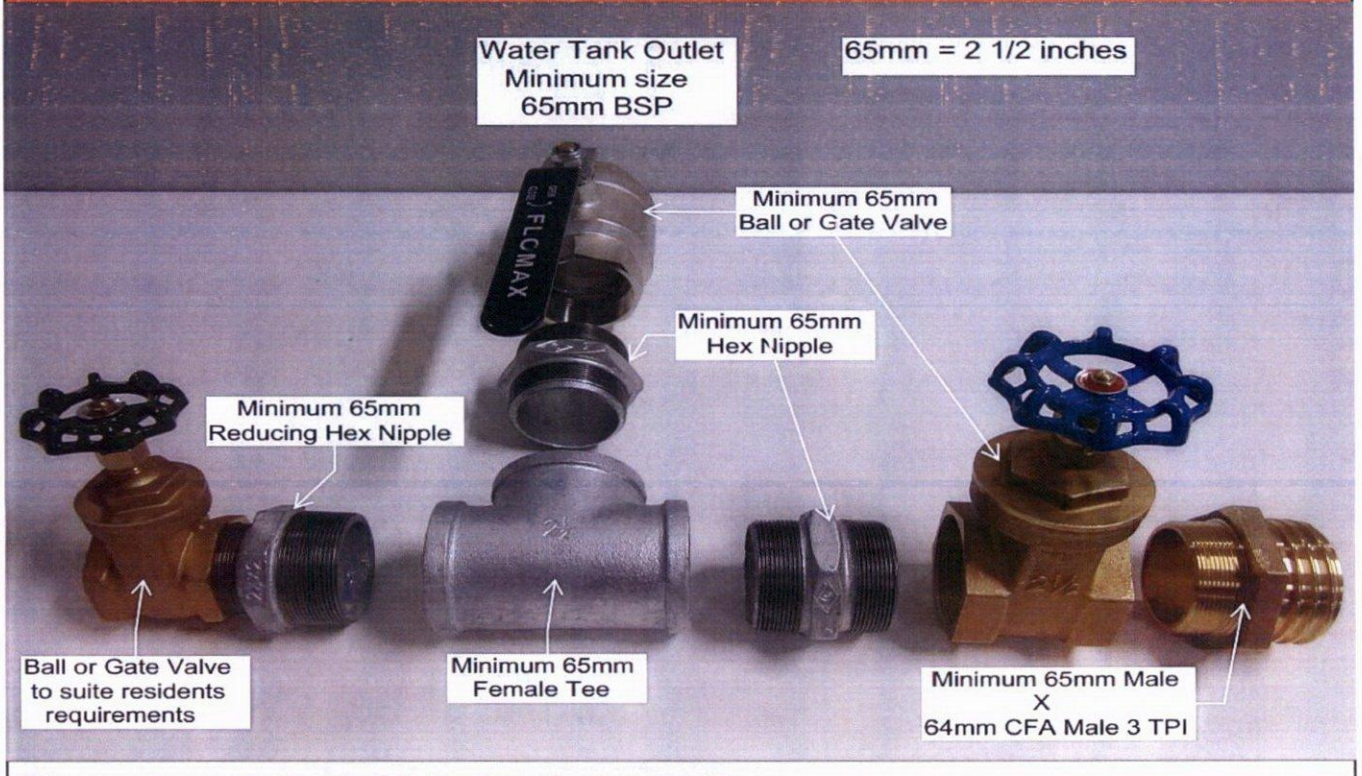
8.3.2 Approved Measures - AM4.1 Water Supply (as specified in Table 4 to clause 53.02-5) and Access objectives

Clause 53.02 -4.3: Water supply and access objectives

Approved Measure - AM4.1 Water supply and access objectives

Requirements	Tank size at or greater than 10,000L - requirements below ARE APPLICABLE Where a 10,000 & greater litre water supply is required the following fire authority fittings apply: • The water supply must be located within 60 metres of the outer edge of the approved building. • The outlet/s of the water tank must be within 4 metres of the access-way and unobstructed. • The water supply must incorporate a separate ball or gate valve British Standard Pipe (BSP 65 millimetre) and coupling (64 millimetre CFA 3 thread per inch male fitting). • Any pipework and fittings must be a minimum of 65 millimetres (excluding the CFA coupling).

Requirement Diagram - Fittings.



If access is required, what is the length of access?

Access is required. Length of council approved northern mid-point route is approximately 165m. The proposed route with mild land-work grading will achieve access requirements.

8.3.3 Approved Measures - AM4.1 Vehicle Access as specified in Table 5 to clause 53.02-5.

Clause 53.02 -4.3: Water supply and access objectives

Approved Measure - AM4.1 Water supply and access objectives

Requirements	• Vehicle access that is designed and constructed as specified in Table 5 to clause 53.02-5 • Fire authority access to the water supply required? Yes. Refer below

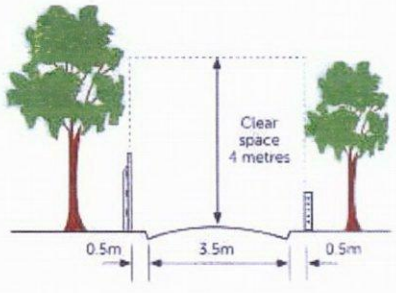
If access is required, the following Design and Construction requirements apply:

1. All-weather construction.
2. A load limit of at least 15 tonnes.
3. Provide a minimum trafficable width of 3.5 metres.
4. Be clear of encroachments for at least 0.5 metres on each side and at least 4 metres vertically.
5. Curves must have a minimum inner radius of 10 metres.
6. The average grade must be no more than 1 in 7 (14.4%) (8.1°) with a maximum grade of no more than 1 in 5 (20%) (11.3°) for no more than 50 metres.
7. Dips must have no more than a 1 in 8 (12.5 per cent) (7.1 degrees) entry and exit angle.
8. Incorporate a turning area for fire fighting vehicles close to the building.

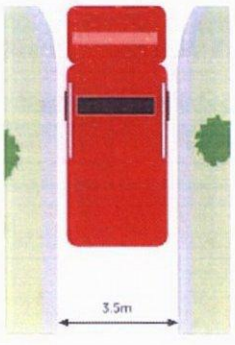
Diagram requirement samples from Table 5 to clause 53.02-5

Refer to the BMP for more detail

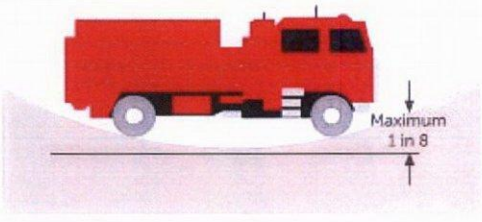
Encroachments for >30m

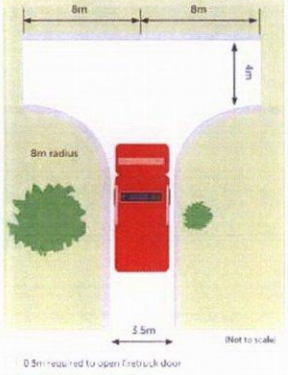


Width for >30m

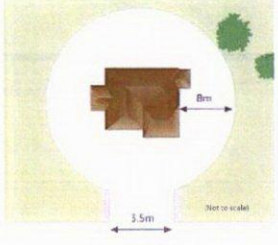


Dips & Gradients >30m





For >100m



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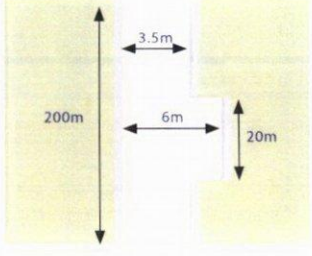


For >200m

Conclusion

Satisfies Approved Measure.

8.3.4 Approved Measures - AM4.2 Water supply and access objectives

Clause 53.02 -4.3: Water supply and access objectives

Approved Measure - AM4.2 Water supply and access objectives

Requirements	A building used for accommodation (other than a dwelling or dependent person's unit), child care centre, education centre, hospital, leisure and recreation or place of assembly is provided with: The lot has access to urban, township or other areas where: - A static water supply for fire fighting and property protection purposes of 10,000 litres per 1,500 square metres of floor space up to 40,000 litres. - Vehicle access that is designed and constructed as specified in Table 5 to Clause 53.02-5. - An integrated approach to risk management that ensures the water supply and access arrangements will be effective based on the characteristics of the likely future occupants including their age, mobility and capacity to evacuate during a bushfire emergency. The water supply may be in the same tank as other water supplies provided that a separate outlet is reserved for fire fighting water supplies.
Response	Not applicable to this submission.

Conclusion

Satisfies Approved Measure.

9. Conclusions

9.1 Main Conclusion

1. Analysis	The development can proceed as the extreme bushfire risk is mitigated to an acceptable level by the level of rural development of the locality, the proximity of fire fighting resources, the ability to evacuate to safety and the implementation of the bushfire protection measures.
2. BAL rating	The BAL rating for the proposal is **29**
3. Defendable Space	The defendable space is 49m to the south and east, and 15m to the north and west
4. Water Tank Requirements	10,000L Water tank made of non-combustible material is required to be installed onsite and maybe provided in the same water tank as other supplies provided they are separated with different outlets. The tank is to be fitted with CFA fittings and the CFA require access to within 4m of the tank outlets. It is to be identified with markings.
5. Access Requirements	Access is required. Length of council approved northern mid-point route is approximately 165m. The proposed route with mild land-work grading will achieve design & construction requirements.
6. Activity Requirements	Particular activities need to be undertaken in order for the building to meet the objectives of cl. 44.06 and cl 53.02. These address the; • Implementation of defendable space, • construction of the building, • installation of the water supplies, • and access.

Refer to the BUSHFIRE MANAGEMNT PLAN for details on all these items.

Note	• This report is based on information supplied by the client • Other...

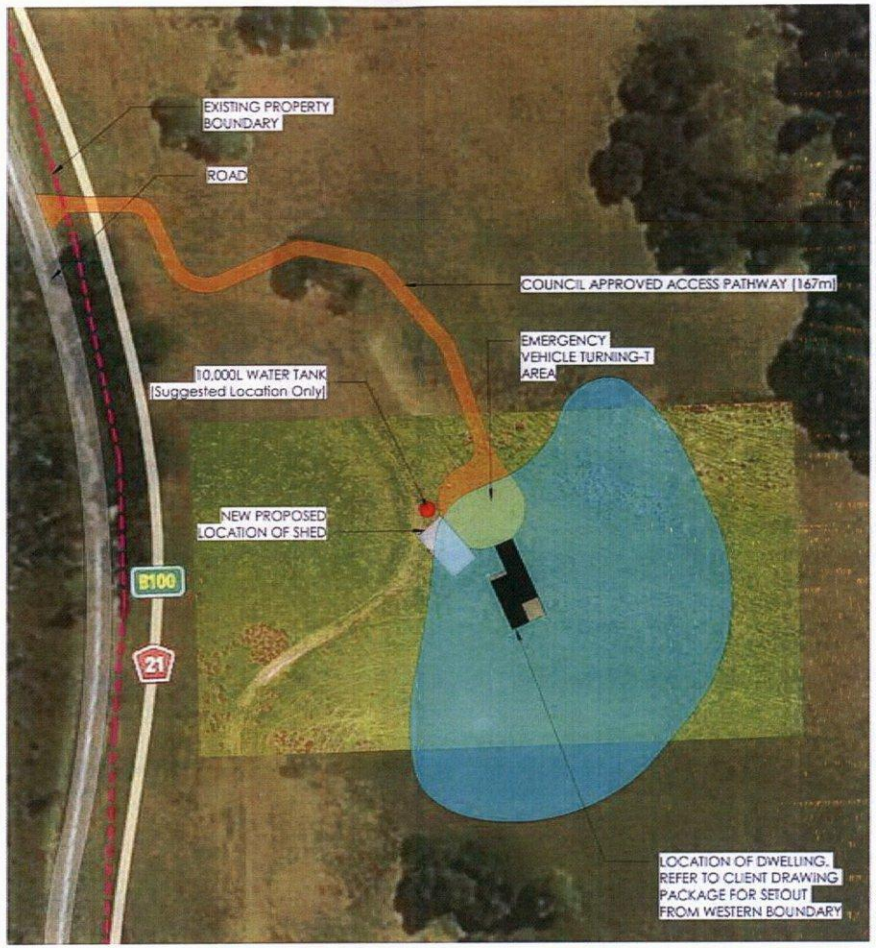
BMS19055

10. Appendix 1.0: Bushfire Management Plan

Note: Reduced BMP Only. Please refer to the Full-size A3 Copy

25-Dec-2019 3970 Great Ocean Road Johanna

Rev C



Construction BAL Rating = 29

N

0 25 50 75

1 BUSHFIRE MANAGEMENT PLAN
101 1:1000

Bushfire Mitigation Measures

a) Defendable Space

Defendable space is provided for a distance of **49m to the south & east, and 15m to the north & west** around the building or to the property boundary whichever is the lesser and managed in accordance with the following:

- Grass must be short cropped and maintained during the declared fire danger period.
- All leaves and vegetation debris must be removed at regular intervals during the declared fire danger period.
- Within 10 metres of a building, flammable objects must not be located close to the vulnerable parts of the building.
- Plants greater than 10 centimetres in height must not be placed within 3m of a window or glass feature of the building.
- Shrubs must not be located under the canopy of trees.
- Individual and clumps of shrubs must not exceed 5 sq. metres in area and must be separated by at least 5metres.
- Trees must not overhang or touch any elements of the building.
- The canopy of trees must be separated by at least 5m
- There must be a clearance of at least 2 metres between the lowest tree branches and ground level.

b) Construction Standard

The Building must be designed and constructed to a minimum Bushfire Attack Level of **BAL – 29**

c) Water Supply

A static water tank dedicated solely for firefighting must be provided and must meet the following requirements:

- An effective capacity of. 10,000L
- Be stored in an above ground water tank constructed of concrete or metal.
- Have all fixed above ground water pipes and fittings required for firefighting purposes made of corrosive resistant metal
- Include a separate outlet for occupant use.
- Be readily identifiable from the building or appropriate identification signage to the satisfaction of the relevant fire authority.
- Be located within 60 metres of the outer edge of the approved building.
- The outlet/s of the water tank must be within 4 metres of the accessway and unobstructed.
- Incorporate a separate ball or gate valve (British Standard Pipe (BSP 65 millimetre) and coupling (64 millimetre CFA 3 thread per inch male fitting).
- Any pipework and fittings must be a minimum of 65 millimetres (excluding the CFA coupling).

d) Access

Vehicle access to the dwelling and CFA water supply outlet must meet the following design and construction requirements:

- All-weather construction.
- A load limit of at least 15 tonnes.
- Provide a minimum trafficable width of 3.5 metres.
- Be clear of encroachments for at least 0.5 metres on each side and at least 4 metres vertically.
- Curves must have a minimum inner radius of 10 metres.
- The average grade must be no more than 1 in 7 (14.4%) (8.1°) with a maximum grade of no more than 1 in 5 (20%) (11.3°) for no more than 50 metres.
- Dips must have no more than a 1 in 8 (12.5 per cent) (7.1 degrees) entry and exit angle.
- If Driveway longer than 100m - incorporate a turning area for fire fighting vehicles close to the building by one of the following:
- A turning circles with a minimum radius of eight metres.
- A driveway encircling the building
- The provision of vehicle turning heads - such as a T or Y head - which meets the specification of Austroad Design for an 8.8metre Service Vehicle

Fireguard

BPAD3 BUSHFIRE CONSULTANT

BPAD FPA SILVER MEMBER

Heath Design Group Pty Ltd. trades as Fireguard Australia, Fireguard Western Australia, Heath Design + Project Management & Drone Director
We are an accredited BPAD3 practitioner in both VIC & WA - BPAD30269.
FPA Australia Silver Members 31580.

Contact Laurie in 0417 728 845 for more information.
Visit our websites for more details
www.heathdesign.com.au
www.fireguardaustralia.com.au
bushfireconsultant@fireguardaustralia.com.au

Rev	Description	Date
A	FIRST SUBMISSION - REV A PLAN	17/12/18
B	CLIENT PROPOSED ACCESS	17/12/18
C	COUNCIL APPROVED ACCESS	25/01/19

STATUS: **BUILDING PERMIT**

anchor homes

CLIENT: BEN HOODLESS & PENNY HEARD

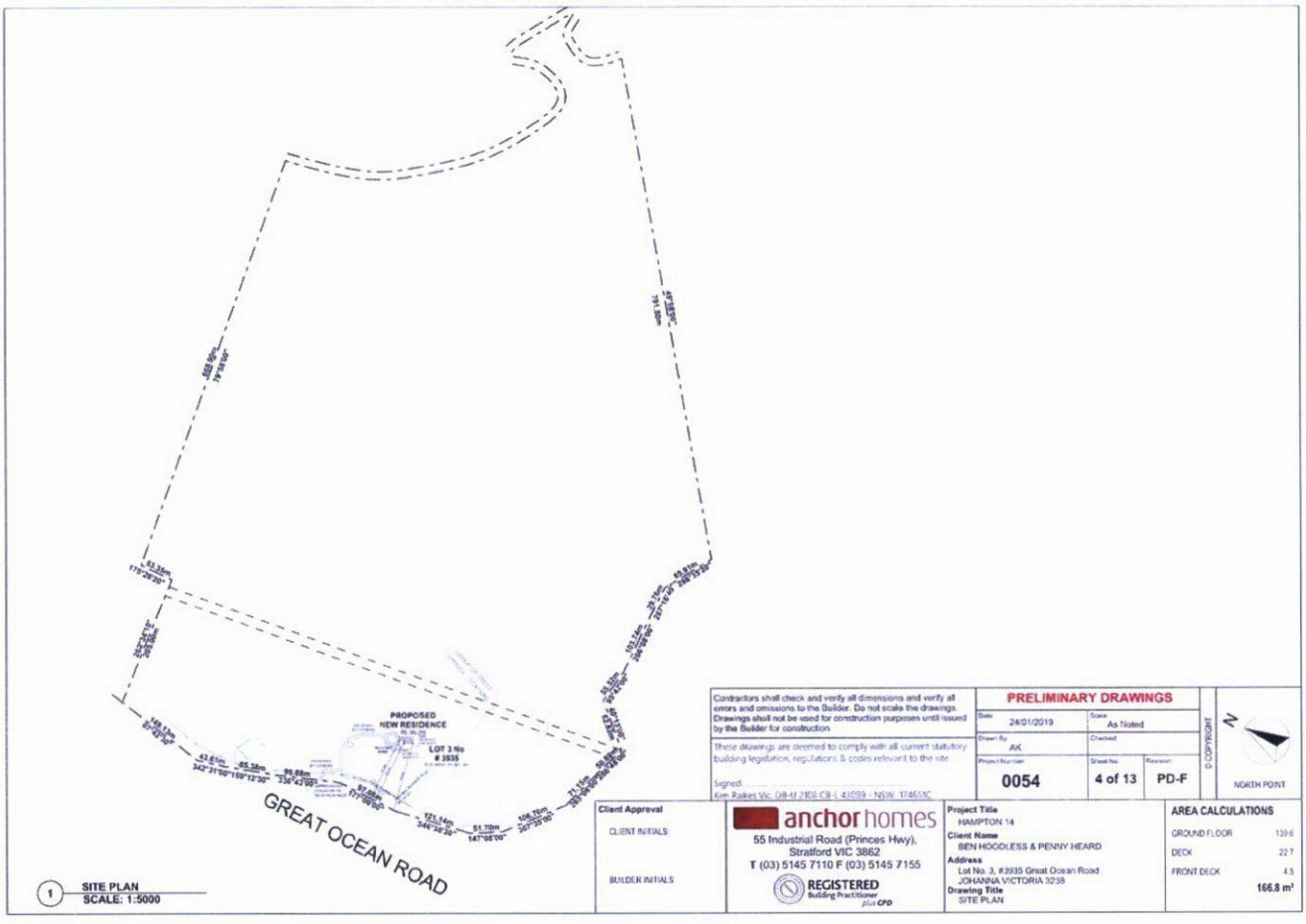
TITLE: BUSHFIRE MANAGEMENT PLAN

PROJECT: NEW SINGLE STORY DWELLING
LOT NO. 3 #3935 GREAT OCEAN ROAD JOHANNA

NORTH	DRAWN: LH	DATE: 25.01.2019
	CHECKED: DH	SCALE @ A3: AS SHOWN
PROJECT NO. 19055	DRAWING NO. 101	REVISION: C

11. Appendix 2.0: Client's proposed development drawings

Note: Refer to 4. Project Proposed Drawing & the associated 4.1 Drawing Register on page 6



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Bushfire Hazard Site Assessment (BHSA)

1. Site Assessment Area

1.1 Description of Site

Undulating farmland. Most of the land around the proposed building is covered in grassland with forest in the gullies. The land is very hilly and broken up with deep gullies filled with forest and scrub.

1.2 Site Aerial

1.3 Site Dimensions	76.12ha
1.4 Existing Vehicle Access	Existing access is currently from far south corner of lot 3, via lot 2. Approved entry approaches site from Great Ocean Road from the NW, zig zagging driveway over approximately 165m
1.5 Nearest Fire Hydrant	N/A

1.6 Features relevant to bushfire	
1. Analysis	The development can proceed as the extreme bushfire risk is mitigated to an acceptable level by the proximity of fire fighting resources and of towns to the north east and south east that can provide protection, and by the implementation of the bushfire protection measures.
2. CFA Brigade Locations within:	• **Otway (Lavers Hill)** • **Carlisle River** • **Princetown** • **Apollo Bay**

Relevant Features to Bushfire Diagram

The site is surrounded by forest within the landscape on very hilly terrain.

There is a body of grassland that extends to the south from the site which can support fast moving grass fires.

The Great Ocean Road is the main road through the area that maybe blocked during a fire event.

There is a community Fire Refuge at Lavers Hill (8km north of the site) that can provide protection duirng a major fire event.

2. Directional Site Assessment Photographs: Vegetation & Topography

2.1 North of Site

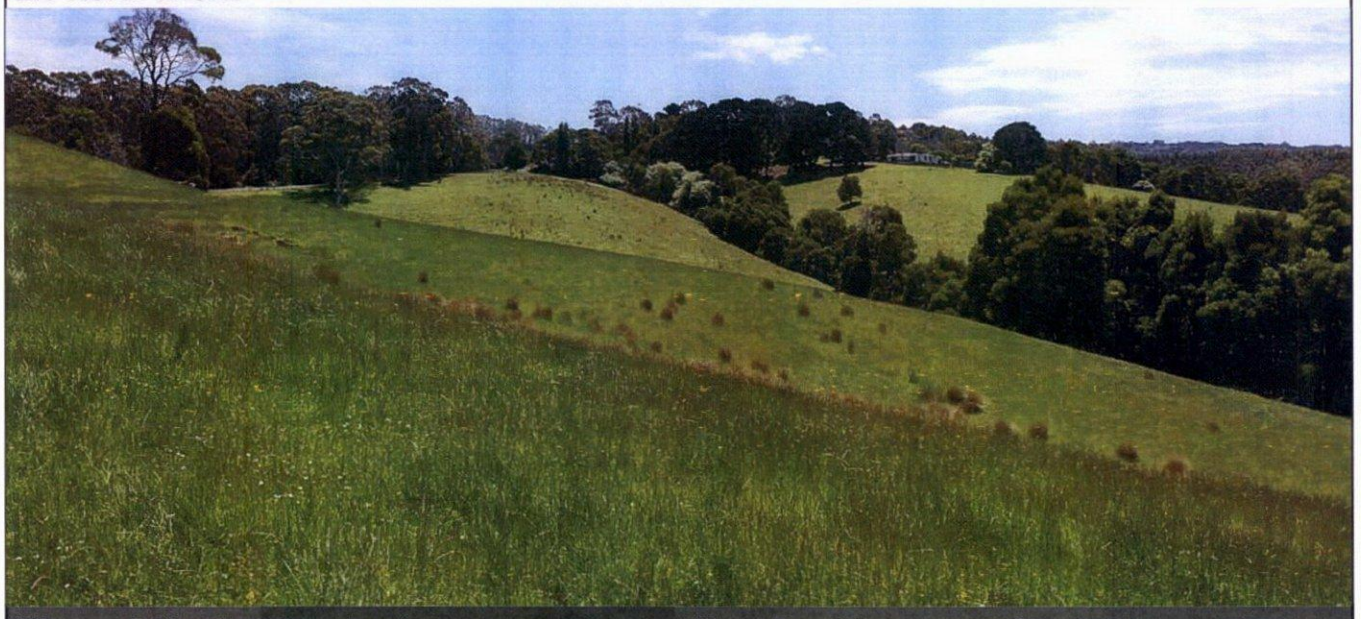


Figure 1 North Grassland **View Position** ground

Above Figure relevant to 'Vegetation Type A' within the BAL Assessment Report Table on page 13

The grassland extends for 64m towards the NE at an average downslope of 18 degrees before leveling out and merging with forest at 100m distance with slope of 10 - 15

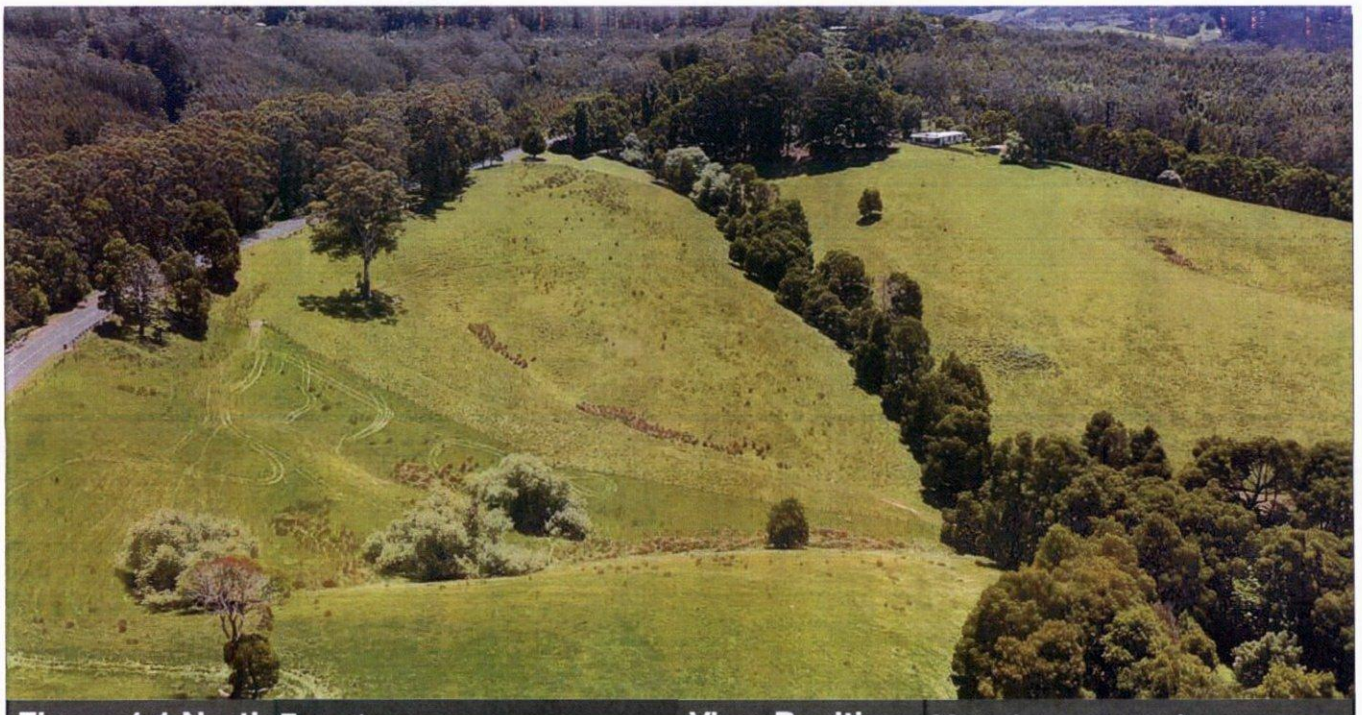


Figure 1.1 North Forest **View Position** 60m above ground

Above Figure relevant to 'Vegetation Type B' within the BAL Assessment Report Table on page 13

Within 85m to the NE is forest in the gullies on 10 -15 degrees down. Due north the grassland is on rising ground for for at least 250m with the road abutting the NW boundary.

Figure 2 West Grassland **View Position** ground

Above Figure relevant to 'Vegetation Type A' within the BAL Assessment Report Table on page 13

Grassland upslope @13 deg extending to road verge at 90m distance. To the WNW the grassland descends into the gully at 15 degrees.

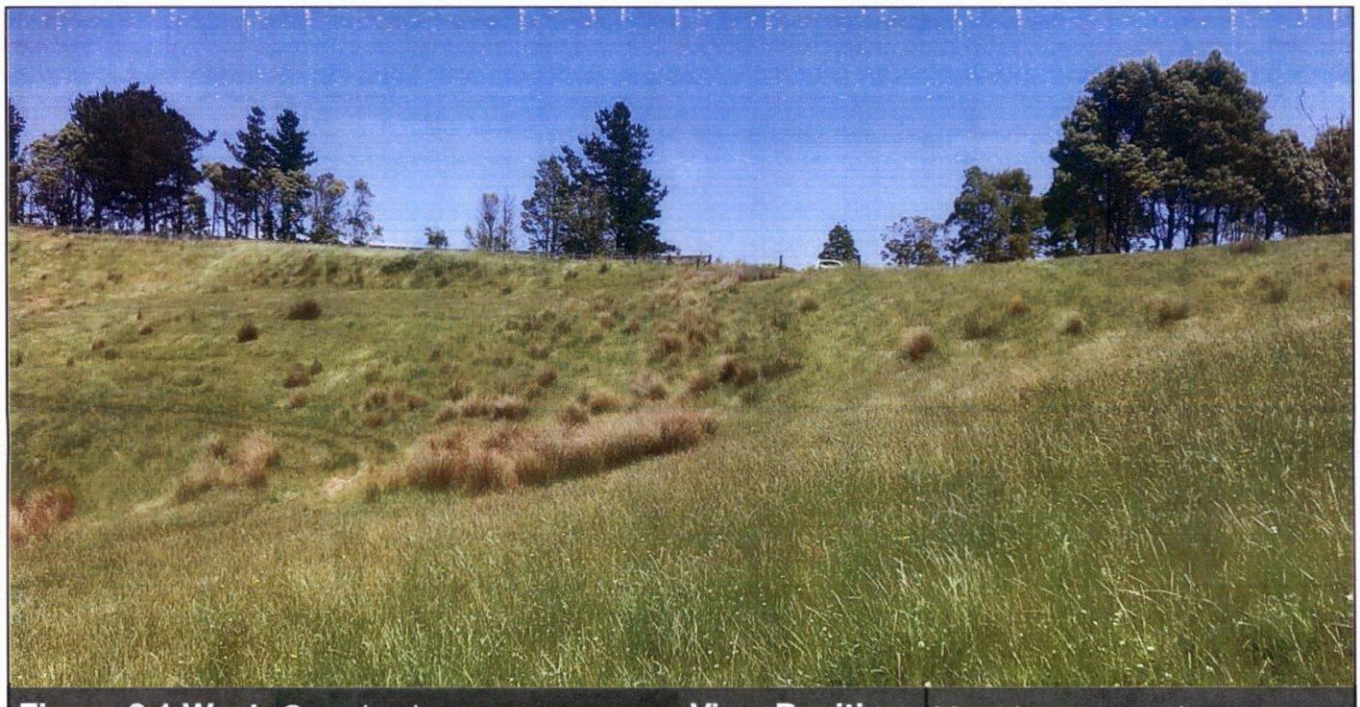


Figure 2.1 West Grassland **View Position** 80m above ground

Above Figure relevant to 'Vegetation Type A' within the BAL Assessment Report Table on page 13

The Great Ocean Road on the west boundary. This view to the WSW shows the steep descent into the gully to the west and south of the planned building.

Figure 3 South Grassland **View Position** ground

Above Figure relevant to 'Vegetation Type A' within the BAL Assessment Report Table on page 13

Grassland into gully at 16 degrees downslope to the bottom of gully - beyond gully is the road and to the SE is forest.

Figure 3.1 South Forest **View Position** 40m above ground

Above Figure relevant to 'Vegetation Type B' within the BAL Assessment Report Table on page 13

To the SE is forest in the gully. The slope of the forest is 10 - 15 degrees down and distance is 85m

2.4 East of Site

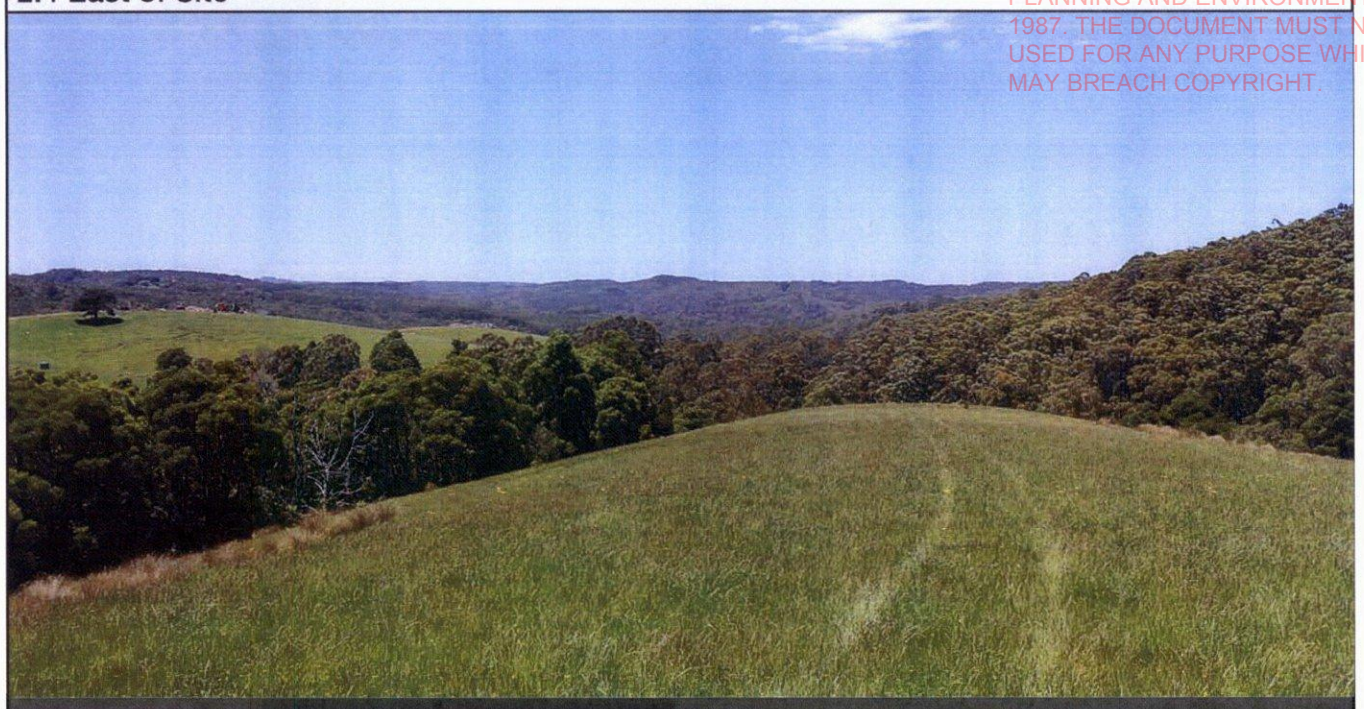


Figure 4 East Grassland **View Position** ground

Above Figure relevant to 'Vegetation Type A' within the BAL Assessment Report Table on page 13

Grassland covering the downward slope of the ridge at 7 degrees and rolling into forest at about 85m distance to the SE, and forest at 85m distance to the NE

Figure 4.1 East Forest **View Position** 60m above ground

Above Figure relevant to 'Vegetation Type B' within the BAL Assessment Report Table on page 13

The overhead image showing the extent of the forest in the gullies: SE - 85m @ 10 - 15 degrees down, NE - 85m @ 10 -15 degrees down

2.5 Access of Site

Figure 5 Access - View Position

-

The access to the site is over the grassland and will be at least 165m in length.

Figure 5.1 Main Threat - View Position

-

The main threat is the extensive forest to the south of the site, particularly to the SW.

3. Vegetation Exclusions

AS3959-2009 cl 2.2.3.2 - Determining the Bushfire Attack Level (BAL) Low threat Vegetation and non-vegetation areas

Vegetation Classification	Direction from Building	Separation Distance (m)	Description

3.1 Modified Vegetation

None observed

3.2 Vegetation Detail - Method 2 Calculation

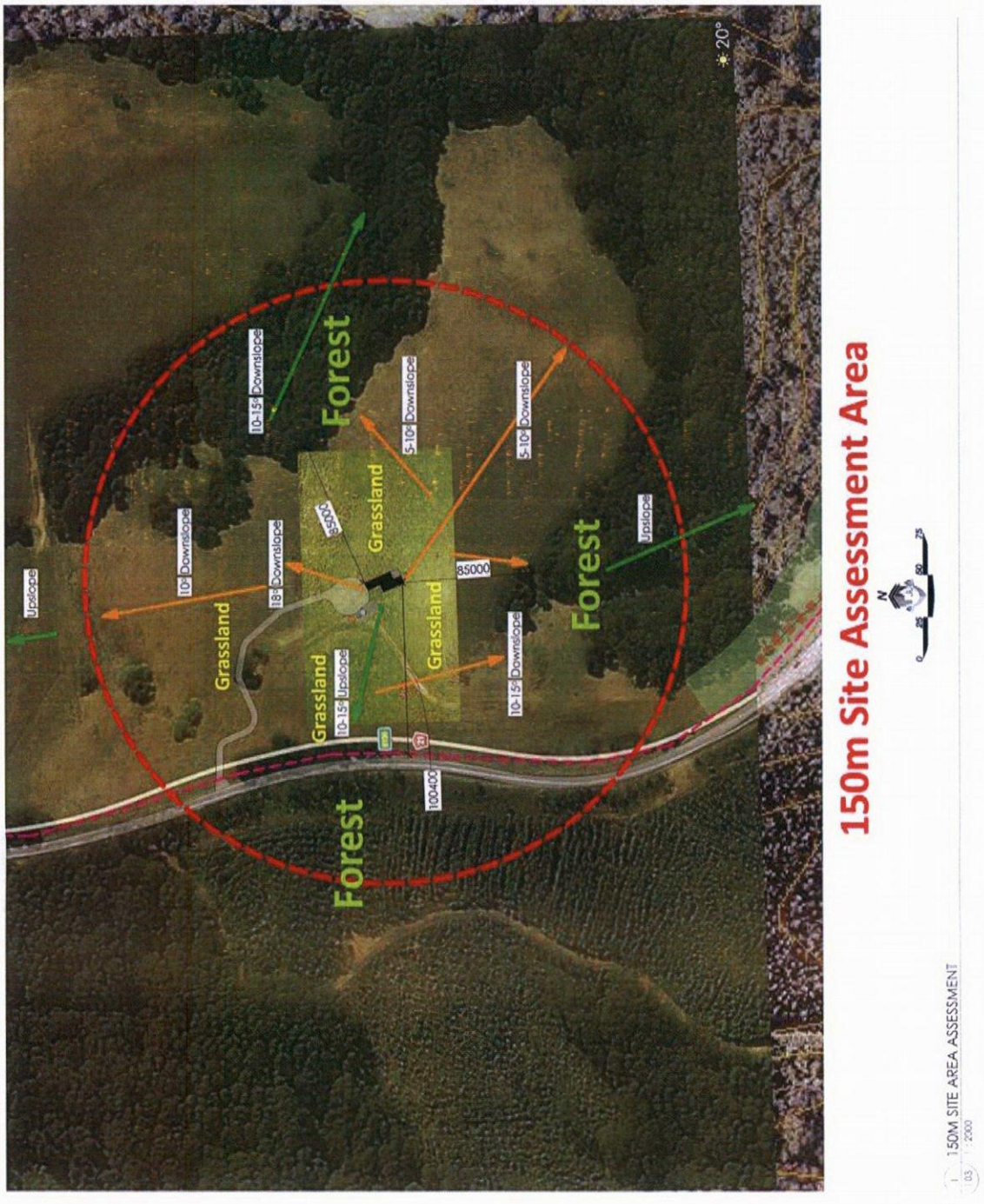
Not used in this submission

3.2 Vegetation Detail - Method 2 Calculation - Continued

Not used in this submission

4. 150m Site Assessment Plan (SAP)

Refer to scale on diagram



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FPA Australia Fire Protection Association Australia SILVER MEMBER

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Bushfire Hazard Landscape Assessment (BHLA)

1. Reason for Site requiring a BHLA

Reference to Cl 53.02: Bushfire - Application - applies as the zoning and/or type of construction are outside those defined as applying to Cl 53.02-1

2. Landscape Around Site

2.1 Locality Map

2.2 Description of Locality

The locality is very hilly with steep ravines and gullies - most of which is covered by exuberant forest that form the Otway Ranges. The region is traversed by a single road that generally follows the coast. There are a number of small towns and hamlets in the region however the two major towns are Colac to the north and Apollo Bay to the south east.

3. Bushfire History

3.1 Past Bushfire Events

The Oways have a long history of bushfires across the region - mainly on the dry ridges inland or at the coast. Most of the region has a very high to extreme bushfire risk. Adding to the risk of ignition of high fuel load areas is the lack of roads and difficulty of access.

Most of the region is hilly and broken up with steep gullies. There is a community fire refuge at Lavers Hill.

3.2 Possible Direction of Bushfire

Fire can advance from any direction however the most likely direction is by the prevailing southerlies driving grassfires into the forests or from the NW with ember attack in advance of the fire front.

3.3 Likely Bushfire scenarios

Grassfires will be fast moving whilst fires within the forest maybe of high intensity and capable of causing major damge in the landscape.

4. Local Prevention and Bushfire Management

4.1 Fire Authority Locations

The locality has a number of fire stations. The main station is at Lavers Hill and this station is also adjacent to the community fire refuge. This complex is 8km north of the site. Further north is Carlisle River and to the NE is Gellibrand. To the NW is Kennedy Creek and due west is Princetown. To the east is Apollo Bay.

4.2 Proximity to urban areas and towns and other areas of protection

The two major towns are Colac, 60kms to the north and Apollo Bay, 50kms to the SE. There are a number of smallers towns in between and these are: Johanna and Glenaire to the south, Hordern Vale to the SE, Beech Forest to the NE, Lavers Hill to the north; Yuulong, Wattle Hill and Princetown, 30kms, to the west.

4.3 Other Measures

There must be a bushfire plan in place. the safest option is to leave early however this action needs to take into account that traveling on the local road network during a fire event is very dangerous.

5. Features relevant to bushfire protection

5.1 Adjoining Land

The land around the planned house location is all grassland and within the site boundaries.

5.2 Access to Areas of safety

There is one main road passing the site leading either north to Colac or south to Apollo Bay.

5.3 Constraints on implementation of appropriate Defendable space

The slope to the NE from the planned house is very steep (about 18 degrees down) and could be difficult to maintain.

6. Landscape Typology

6.1 Landscape Type

The landscape type is type 4. Of this landscape the following can be stated:
* The type of vegetation, and the topography of the land may result in major neighbourhood destruction in the event of a fire event.
* Bushfire can approach from more than one direction - the NW or SW most likely.
* There is a history of major bushfire events north, west and east of the area.
* Access to safety is uncertain - only one road out.

The bushfire risk from such a landscape is extreme.

6.2 Recommendations for Safety and proceeding with development

There should be a bushfire plan in place and all bushfire measures must be implemented. With these in place and with the proximity of towns mainly to the north and SE and the availability of fire fighting resources the risk can be reduced to an acceptable level.

There is a need to plan and prepare for bushfire and monitor the situation with a commitment to leave early.

Provider of Choice

Fireguard Australia operate in Victoria and Western Australia providing Fire Protection Reports and Services.

We provide BPAD3 accredited bushfire risk solutions, aerial drone site analysis, detailed surveying and CAD documentation.

We consult Councils, Architects, Builders & home owners from site planning to authority submission.

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Fire Protection Association Australia

Visit
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www.heathdesign.com.au
for more information

Fireguard AUSTRALIA

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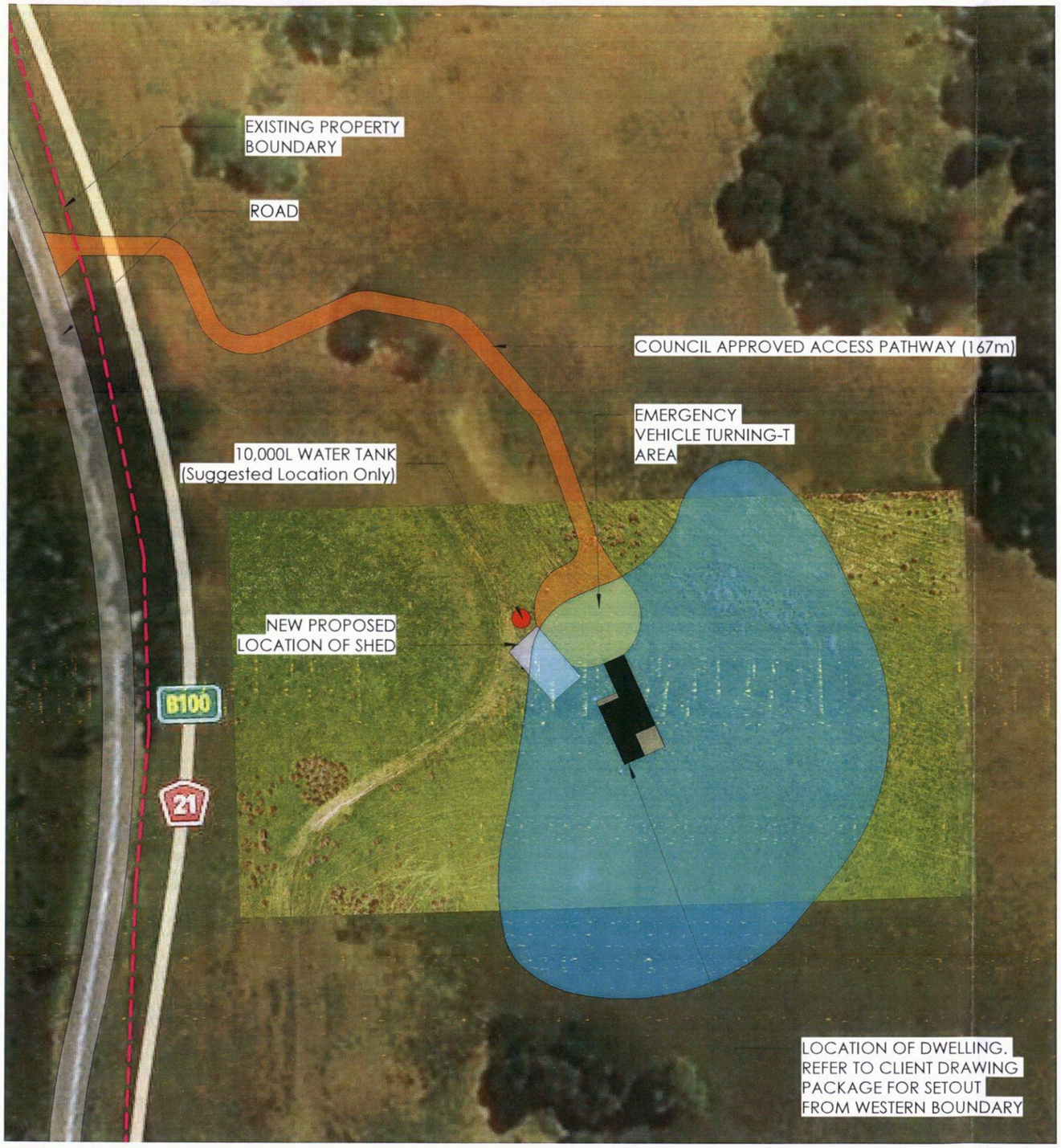

Construction BAL Rating = 29

N

0 25 50 75

1 / 101 BUSHFIRE MANAGEMENT PLAN
1 : 1000

Bushfire Mitigation Measures

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Defendable space is provided for a distance of **49m to the south & east, and 15m to the north & west** around the building or to the property boundary whichever is the lesser and managed in accordance with the following:

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- Individual and clumps of shrubs must not exceed 5 sq. metres in area and must be separated by at least 5metres.
- Trees must not overhang or touch any elements of the building.
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- There must be a clearance of at least 2 metres between the lowest tree branches and ground level.

b) Construction Standard

The Building must be designed and constructed to a minimum Bushfire Attack Level of **BAL – 29**

c) Water Supply

A static water tank dedicated solely for firefighting must be provided and must meet the following requirements:

- An effective capacity of. 10,000L
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- Have all fixed above ground water pipes and fittings required for firefighting purposes made of corrosive resistant metal
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- A load limit of at least 15 tonnes.
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- Be clear of encroachments for at least 0.5 metres on each side and at least 4 metres vertically.
- Curves must have a minimum inner radius of 10 metres.
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bushfireconsultant@fireguardaustralia.com.au

Rev	Description	Date
A	FIRST SUBMISSION - REV A PLAN	17/12/18
B	CLIENT PROPOSED ACCESS	17/12/18
C	COUNCIL APPROVED ACCESS	25/01/19

STATUS: **BUILDING PERMIT**

anchorhomes

CLIENT: BEN HOODLESS & PENNY HEARD

TITLE: BUSHFIRE MANAGEMENT PLAN

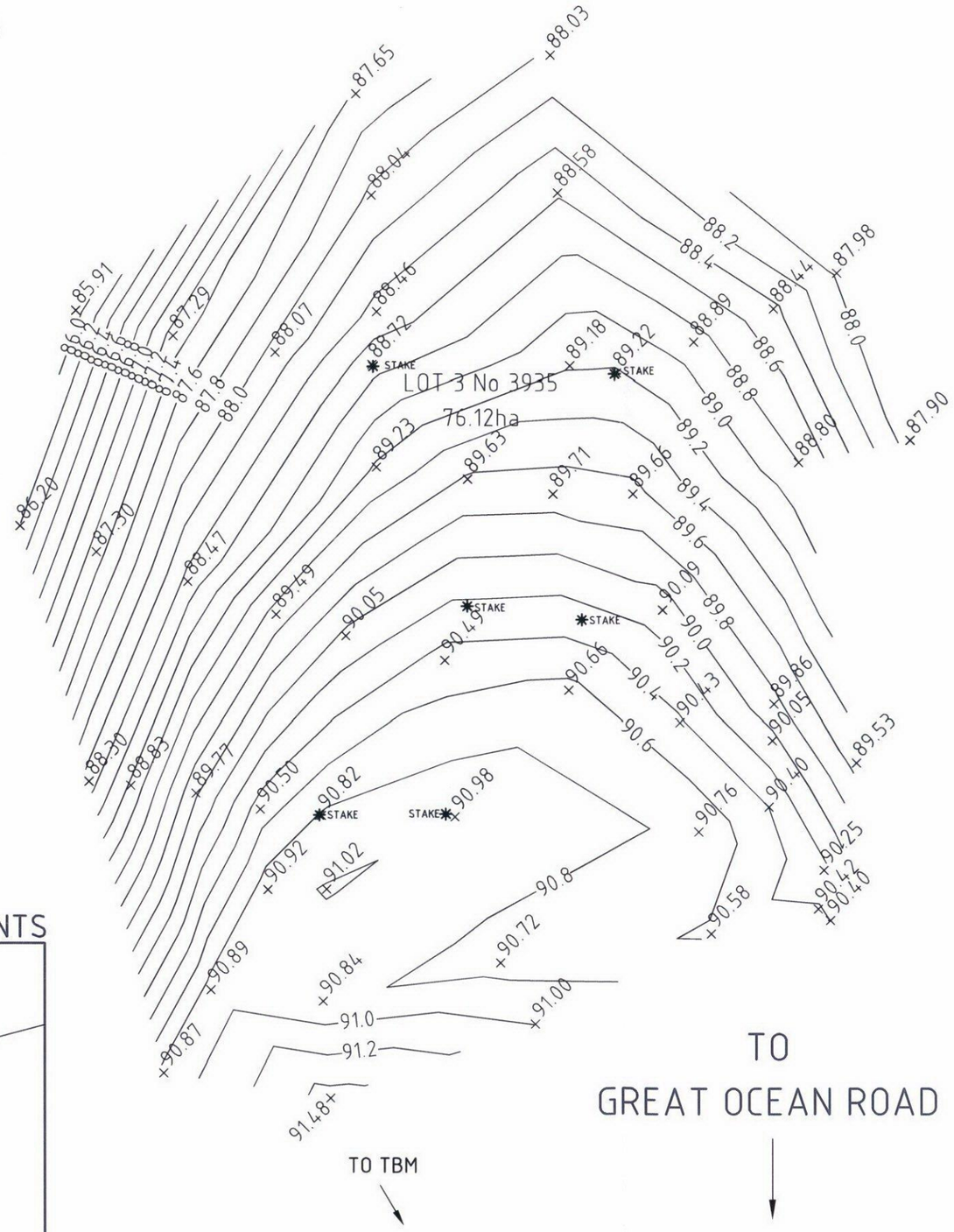
PROJECT: NEW SINGLE STORY DWELLING

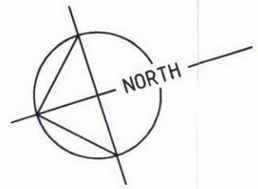
LOT NO. 3 #3935 GREAT OCEAN ROAD JOHANNA

NORTH:	DRAWN:	DATE:
	LH	25.01.2019
	CHECKED: DH	SCALE @ A3: AS SHOWN
PROJECT NO: 19055	DRAWING NO: **101**	REVISION : **C**

NOTE:
THE ALIGNMENT OF TITLE BOUNDARY IS APPROXIMATE ONLY DUE TO NO BOUNDARY PEGS PRESENT AT TIME OF SURVEY. A RE-ESTABLISHMENT SURVEY IS REQUIRED.

NOTE:
GROUP OF TREES ADJACENT TO THE SUBJECT LOT, DETAIL PLEASE REFER TO CAD DRAWING.

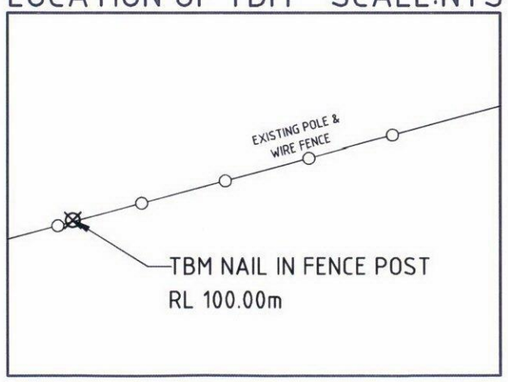




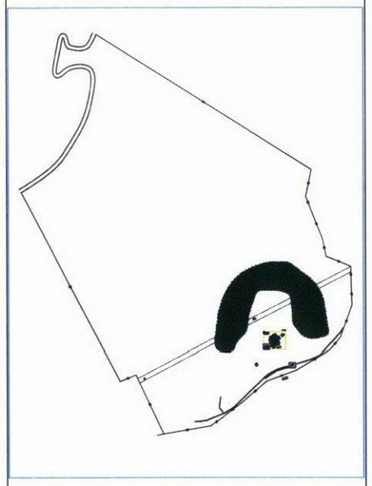
TO
GREAT OCEAN ROAD

TO TBM

LOCATION OF TBM SCALE:NTS



Rev.	Remark/Comment	Date:	Appr.
0	ORIGINAL SURVEY	03.09.18	



CHECK BEARINGS & DISTANCES WITH A CLEAR COPY OF TITLE

LEVELS ARE TO AN ARBITRARY DATUM
200mm CONTOUR INTERVAL

THIS IS NOT A RE-ESTABLISHMENT SURVEY

THE TITLE FOR THIS PLAN HAS BEEN COMPILED USING PLANS SUPPLIED BY THE CLIENT. IN MOST CASES THESE ARE PRELIMINARY SUBDIVISION PLANS. FINAL APPROVED PLANS WILL SHOW ANY CHANGES TO TITLE DIMENSIONS AND EASEMENTS. AS CHANGES BETWEEN PRELIMINARY AND FINAL APPROVED PLANS ARE COMMON, THE DIMENSIONS AND EASEMENTS MUST BE VERIFIED WITH APPROVED PLANS OF SUBDIVISION BEFORE ISSUING PLANS FOR CONSTRUCTION.

Title: FEATURE SURVEY

Client: ANCHOR HOMES

Address: LOT 3 No 3935 GREAT OCEAN RD JOHANNA

PLAN OF SUB
PS 330301U EDITION 1

Field:	Drawn:
B.V.	Z.Z.
Date: 03.09.18	**Scale:** 1:200 @ A3
Job Number: 116009	**Revision:**

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SHEET No.	DESCRIPTION	REV NO.
1	COVER PAGE	PD-F
2	GENERAL NOTES	PD-F
3	SCHEDULES	PD-F
4	SITE PLAN	PD-F
5	SITE PLAN	PD-F
6	CONTOUR PLAN	PD-F
7	FLOOR PLAN	PD-F
8	ELECTRICAL	PD-F
9	ELEVATIONS	PD-F
10	ELEVATIONS	PD-F
11	KITCHEN, WIP & LAUNDRY	PD-F
12	ENSUITE & BATHROOM	PD-F

PROPOSED NEW RESIDENCE

For: BEN HOODLESS & PENNY HEARD

At: Lot No. 3, #3970 Great Ocean Road JOHANNA VICTORIA 3238

Client Approval

CLIENT INITIALS: _ _ _ _

BUILDER INITIALS: _ _ _ _

anchor homes
55 Industrial Road (Princes Hwy),
Stratford VIC 3862
T (03) 5145 7110 **F** (03) 5145 7155
REGISTERED Building Practitioner *plus* **CPD**

Project Title
HAMPTON 14
Client Name
BEN HOODLESS & PENNY HEARD
Address
Lot No. 3, #3970 Great Ocean Road
JOHANNA VICTORIA 3238
Drawing Title
COVER PAGE

AREA CALCULATIONS

GROUND FLOOR	139.6
DECK	22.7
FRONT DECK	4.5
	166.8 m²

Contractors shall check and verify all dimensions and verify all errors and omissions to the Builder. Do not scale the drawings. Drawings shall not be used for construction purposes until issued by the Builder for construction

These drawings are deemed to comply with all current statutory building legislation, regulations & codes relevant to the site.

Signed.....
Ken Raikes Vic. DB-U 2108 CB-L 43089 - NSW. 174651C

PRELIMINARY DRAWINGS

Date: 9/04/2019	Scale: As Noted	
Drawn By: AK	Checked:	
Project Number: **0054**	Sheet No: **1 of 13**	Revision: **PD-F**

N
NORTH POINT

GENERAL NOTES:

ALL WORKS CARRIED OUT SHALL BE IN STRICT COMPLIANCE WITH THE PROVISIONS OF THE BUILDING CODE OF AUSTRALIA, STATE BUILDING REGULATIONS & LOCAL AUTHORITY REQUIREMENTS.

CONTRACTORS SHALL CHECK ALL DIMENSIONS ON SITE PRIOR TO COMMENCING ANY WORKS.

WRITTEN DIMENSIONS HAVE PREFERENCE TO SCALE.

PLANS SHALL BE READ IN CONJUNCTION WITH PROJECT SPECIFICATIONS & ANY ATTACHED DOCUMENTATION.

IT IS THE BUILDERS RESPONSIBILTY TO ENSURE THAT THE BUILDING IS WITHIN THE DESIGNATED BOUNDARIES AND VERIFY THAT THE SITE IS SHOWN CORRECT.

IT IS THE OWNERS RESPONSIBILTY TO NOTIFY THE DESIGNER OF ANY SERVICES.

⚡ DENOTES SMOKE DETECTOR INSTALLED IN ACCORDANCE WITH AS 3786 - 1990

GLAZING TO COMPLY WITH AS 1288 - 2006 "GLASS IN BUILDINGS - SELECTION & INSTALLATION"

OVERFLOW RELIEF GULLY REQUIREMENTS TO COMPLY WITH AS 3500.2 - 1990 "SANITARY PLUMBING & SANITARY DRAINAGE"

DP DENOTES DOWNPIPE
SP DENOTES DOWNPIPE & SPREADER

EXHAUST FANS, RANGEHOODS & TASTICS VENTILATED TO OPEN AIR VENTS IN EAVE

DOWNPIPE SOCKS TO BE USED DURING ON-SITE CONSTRUCTION WORKS

REMOVEABLE HINGES TO BE FITTED TO WC

WET AREAS TO BE IN ACCORDANCE WITH AS3740

SET TO BE CONSTRUCTED IN ACCORDANCE WITH NCC2016 3.9.1

TIMBER STEPS & DECKING TO BE COATED WITH SLIP RESISTANT COATING TO MANUFACTURERS SPECIFICATIONS IN ACCORDANCE WITH AS4586 - REFER TO NCC2016 3.9.1.1

ALL WORKMANSHIP & MATERIALS TO BE IN ACCORDANCE WITH RELEVANT BUILDING CODES & COUNCIL REQUIREMENTS. THESE DRAWINGS DO NOT SHOW ANY STRUCTURAL ENGINEERING DETAILS.

WASTE MANAGEMENT PLAN -
EXCAVATED MATERIALS RELOCATED ON SITE FOR GARDENS. BRICKS, CONCRETE, TIMBER & OTHER PRODUCTS SORTED AND DISPOSED TO LOCAL RECYCLING FACILITY AS PER WASTE BOARD GUIDE.

THE DEVELOPMENT WILL NOT HAVE ANY ADVERSE EFFECT ON THE ENVIRONMENT OR ITS SURROUNDS.

TERMITE PROTECTION IS IN ACCORDANCE WITH COUNCIL GUIDELINES AND AS 3660

PROJECT SITE NOTES:

ALL DIMENSIONS ARE IN METERS
DIMENSIONS ARE SHOWN ON THE SITE PLAN.
ALL DIMENSIONS ARE TO BE VERIFIED ON SITE PRIOR TO CONSTRUCTION.

THERE ARE NO TREES TO BE REMOVED IN THE CONSTRUCTION ZONE

LEVELS TO ARBITARY HEIGHT DATUM, SEE SITE PLAN AND ELEVATIONS

NEW WORKS CONNECTION TO COUNCIL APPROVED STORM WATER SYSTEMS.

BUILDING OFFSETS ARE SHOWN ON SITE PLAN

SITE CUT TO BE CARRIED OUT - SILTATION CONTROL MAYBE REQUIRED.

PROJECT SPECIFIC NOTES:

EXTERNAL FRAMING TIMBERS TO BE MINIMUM DURABILITY OF H3

SITE SOIL CLASSIFICATION **'M'**

BAL RATING - **'29'**

WIND LOAD CLASSIFICATION - **'N3'**

BAL NOTES: (BAL-29)

SUBFLOOR SUPPORTS	ENCLOSED BY EXTERNAL WALL OR STEEL, BRONZE OR ALUMINIUM MESH, NON-COMBUSTIBLE SUPPORTS WHERE THE SUBFLOOR IS ENCLOSED,NATURALLY FIRE RESISTANT TIMBER STUMPS OR POSTS ON 75mm METAL STIRRUPS
FLOORS	CONCRETE SLAB ON GROUND OR ENCLOSED BY EXTERNAL WALL, METAL MESH AS ABOVE OR FLOORING LESS THAN 400mm ABOVE GROUND LEVEL TO BE NON-COMBUSTIBLE, NATURALLY FIRE RESISTANT TIMBER OR PROTECTED ON THE UNDERSIDE WITH SARKING OR MINERAL WOOL INSULATION
EXTERNAL WALLS	NON-COMBUSTIBLE MATERIAL (MASONARY), BRICK, VENEER, MUD BRICK, AERATED CONCRETE, CONCRETE), TIMBER FRAMED, STEEL FRAMED WALLS, SARKED ON THE OUTSIDE AND CLAD WITH 6mm FIBRE CEMENT SHEETING OR STEEL SHEETING OR BUSHFIRE RESISTANT TIMBER
EXTERNAL WINDOWS	5mm TOUGHENED GLASS WITH OPENEABLE PORTION SCREENED AND FRAME OF METAL OR METAL REINFORCED PVC-U, OR BUSHFIRE RESISTING TIMBER AND PORTION WITHIN 400mm OF GROUND, DECK, ETC. SCREENED
EXTERNAL DOORS	PROTECTED BY BUSHFIRE SHUTTER, OR SCREENED WITH STEEL, BRONZE OR ALUMINIUM MESH OR NON COMBUSTIBLE OR 35mm SOLID TIMBER FOR 400mm ABOVE THRESHOLD, METAL OR BUSHFIRE RESISTING TIMBER FRAMED TIGHT FITTING WITH WEATHER STRIPS AT BASE
ROOFS	NON-COMBUSTIBLE COVERING. ROOF/WALL JUNCTION SEALED. OPENINGS FITTED WITH NON-COMBUSTIBLE EMBER GUARDS. ROOF TO BE FULLY SARKED
VERANDAHS DECKS ETC	ENCLOSED SUB-FLOOR SPACE OR NON-COMBUSTIBLE OR BUSHFIRE RESISTANT TIMBER SUPPORTS. DECKING TO BE NON-COMBUSTIBLE OR BUSHFIRE RESISTING TIMBER

REVISION SUMMARY

#	NOTES
PD 13.09.18 AK	- Preliminary drawings issued - Site Engineering
PDB 26.09.18 AK	- Re-Site - Driveway change - Increase Living size - Window changes
PDC 09.10.18 AK	- Re-Site - Driveway change - Robe added to Bedroom 2
PDD 15.10.18 AK	- Electrical Changes - Window changes
PDE 30.10.18 AK	- Driveway amendment
PDF 09.04.19 AK	- Driveway amendment - DWG Alts - Waterways noted - Shed relocated

Client Approval

CLIENT INITIALS:

_ _ _ _

BUILDER INITIALS:

_ _ _ _

anchor homes
55 Industrial Road (Princes Hwy),
Stratford VIC 3862
T (03) 5145 7110 **F** (03) 5145 7155
REGISTERED Building Practitioner plus CPD

Project Title
HAMPTON 14
Client Name
BEN HOODLESS & PENNY HEARD
Address
Lot No. 3, #3970 Great Ocean Road
JOHANNA VICTORIA 3238
Drawing Title
GENERAL NOTES

AREA CALCULATIONS

GROUND FLOOR	139.6
DECK	22.7
FRONT DECK	4.5
	166.8 m²

Contractors shall check and verify all dimensions and verify all errors and omissions to the Builder. Do not scale the drawings. Drawings shall not be used for construction purposes until issued by the Builder for construction

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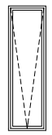
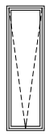
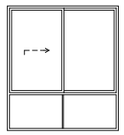
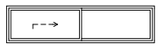
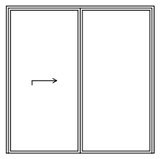
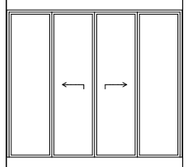
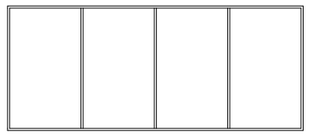
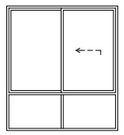
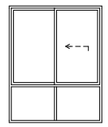
Signed.....
Ken Raikes Vic. DB-U 2108 CB-L 43089 - NSW. 174651C

PRELIMINARY DRAWINGS

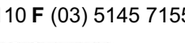
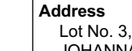
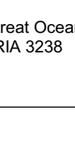
Date: 9/04/2019	Scale: As Noted	
Drawn By: AK	Checked:	
Project Number: **0054**	Sheet No: **2 of 13**	Revision: **PD-F**

N
NORTH POINT

WINDOW / DOOR SCHEDULE

ROOM	WIP	KITCHEN	DINING	ENS.	BEDROOM 2	BEDROOM 2	BEDROOM 2	LIVING	LIVING	BEDROOM 3	BATH
ID	01	02	03	04	05	06	07	08	09	10	11
WINDOW / DOOR TYPE	AWNING	AWNING	SLIDING	SLIDING	SLIDING	FIXED	SLIDING DOOR	SLIDING DOOR	FIXED COMMERCIAL	SLIDING	SLIDING
HEAD HEIGHT	2,400	2,400	2,400	2,400	2,400	2,400	2,400	2,400	2,400	2,400	2,400
SILL HEIGHT	370	370	370	2,000	1,800	370	0	0	370	370	500
OUTSIDE VIEW											
HEIGHT	2,030	2,030	2,030	400	600	2,030	2,400	2,400	2,030	2,030	1,900
WIDTH	610	610	1,810	1,210	2,410	2,410	2,410	2,858	4,820	1,810	1,510
LINTEL	140 x 45 MGP10	140 x 45 MGP10	170 x 45 LVL	140 x 45 MGP10	170 x 45 LVL	170 x 45 LVL	170 x 45 LVL	170 x 45 LVL	180 PFC with 90 x 90 STEEL POSTS	170 x 45 LVL	140 x 45 MGP10

WINDOW / DOOR SCHEDULE

ROOM	BEDROOM 1	BEDROOM 1	HALLWAY	L'DRY	STORE
ID	12	13	14	15	16
WINDOW / DOOR TYPE	FIXED	SLIDING	FIXED	HINGED	AWNING
HEAD HEIGHT	2,400	2,400	1,800	2,225	2,400
SILL HEIGHT	370	1,800	1,200	0	1,200
OUTSIDE VIEW					
HEIGHT	2,030	600	600	2,340	1,200
WIDTH	2,410	2,410	1,810	820	610
LINTEL	170 x 45 LVL	170 x 45 LVL	170 x 45 LVL	140 x 45 MGP10	140 x 45 MGP10

Client Approval

CLIENT INITIALS:

_ _ _ _

BUILDER INITIALS:

_ _ _ _

anchor homes
55 Industrial Road (Princes Hwy),
Stratford VIC 3862
T (03) 5145 7110 **F** (03) 5145 7155
REGISTERED Building Practitioner plus CPD

Project Title
HAMPTON 14
Client Name
BEN HOODLESS & PENNY HEARD
Address
Lot No. 3, #3970 Great Ocean Road
JOHANNA VICTORIA 3238
Drawing Title
SCHEDULES

AREA CALCULATIONS

GROUND FLOOR	139.6
DECK	22.7
FRONT DECK	4.5
	166.8 m²

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Signed.....
Ken Raikes Vic. DB-U 2108 CB-L 43089 - NSW. 174651C

PRELIMINARY DRAWINGS

Date: 9/04/2019	Scale: As Noted	
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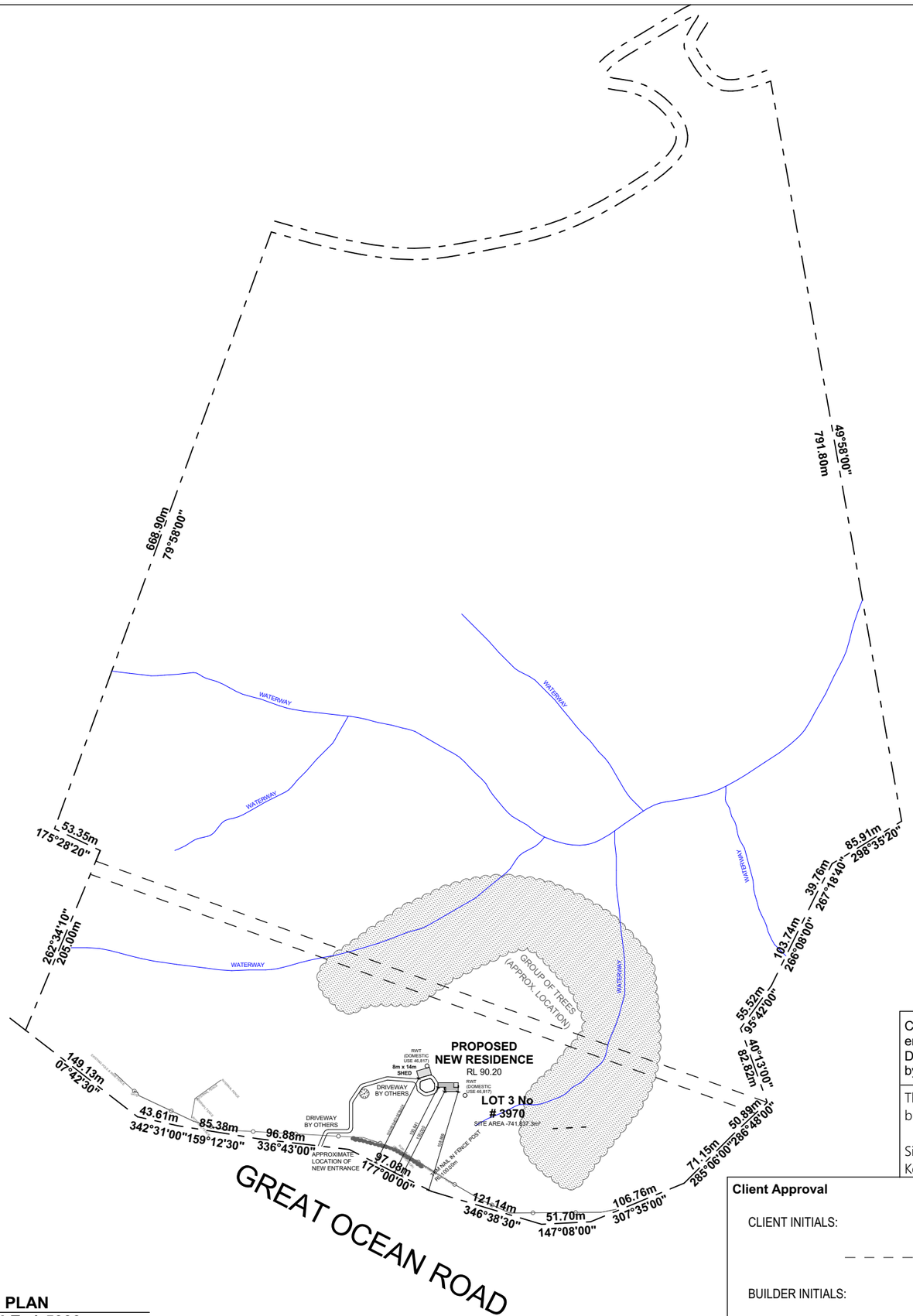
Project Number: **0054**	Sheet No: **3 of 13**	Revision: **PD-F**

N
NORTH POINT



1 **SITE PLAN**
SCALE: 1:5000

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PRELIMINARY DRAWINGS

Date: 9/04/2019	Scale: As Noted
Drawn By: AK	Checked:
Project Number: **0054**	Sheet No: **4 of 13**
	Revision: **PD-F**

N
NORTH POINT

Client Approval

CLIENT INITIALS: _ _ _ _

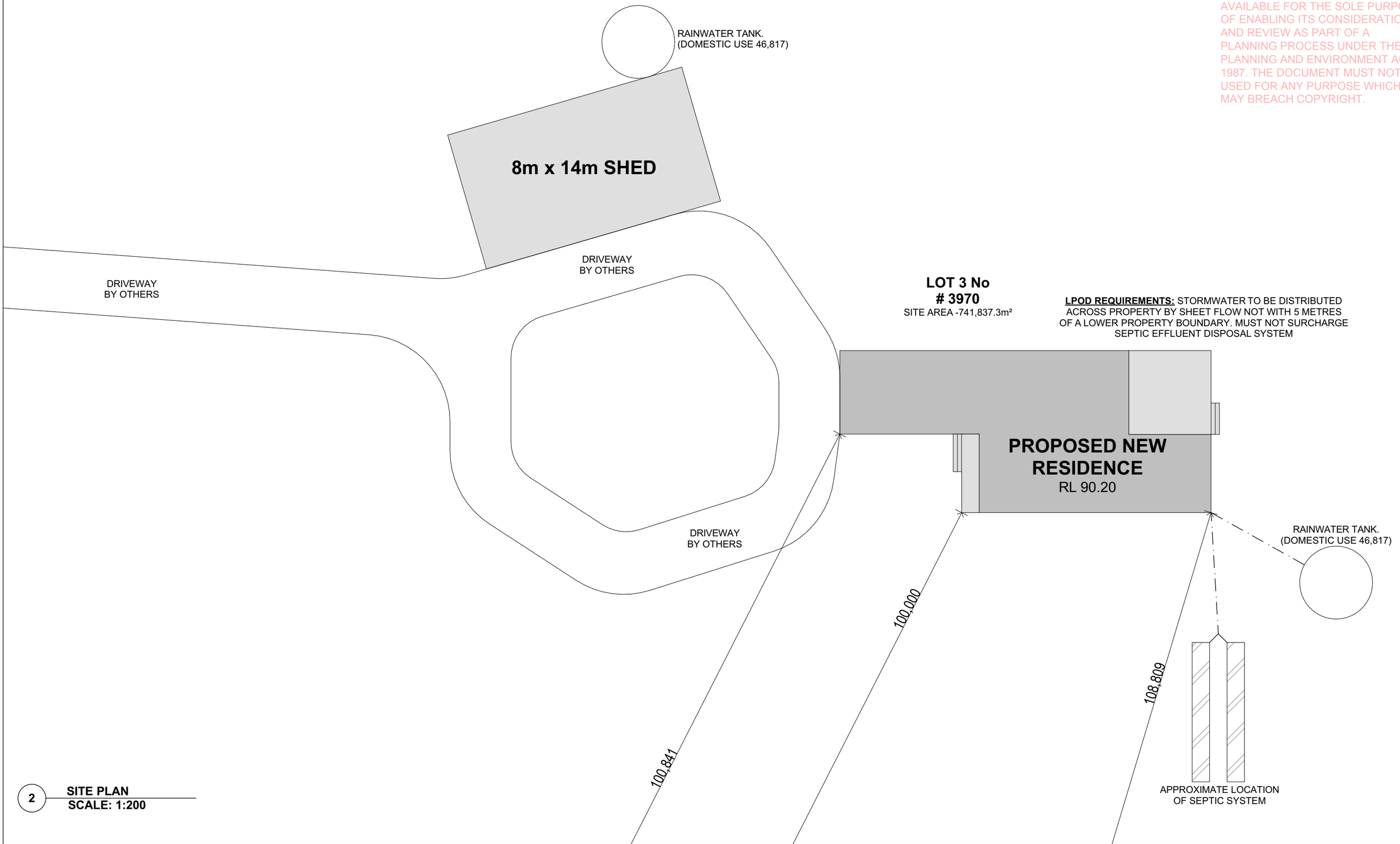
BUILDER INITIALS: _ _ _ _

anchor homes
55 Industrial Road (Princes Hwy),
Stratford VIC 3862
T (03) 5145 7110 **F** (03) 5145 7155
REGISTERED Building Practitioner plus CPD

Project Title
HAMPTON 14
Client Name
BEN HOODLESS & PENNY HEARD
Address
Lot No. 3, #3970 Great Ocean Road
JOHANNA VICTORIA 3238
Drawing Title
SITE PLAN

AREA CALCULATIONS

GROUND FLOOR	139.6
DECK	22.7
FRONT DECK	4.5
	166.8 m²



2 SITE PLAN
SCALE: 1:200

Client Approval

CLIENT INITIALS: _ _ _ _

BUILDER INITIALS: _ _ _ _

anchor homes
55 Industrial Road (Princes Hwy),
Stratford VIC 3862
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Project Title
HAMPTON 14
Client Name
BEN HOODLESS & PENNY HEARD
Address
Lot No. 3, #3970 Great Ocean Road
JOHANNA VICTORIA 3238
Drawing Title
SITE PLAN

AREA CALCULATIONS

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FRONT DECK	4.5
	166.8 m²

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PRELIMINARY DRAWINGS

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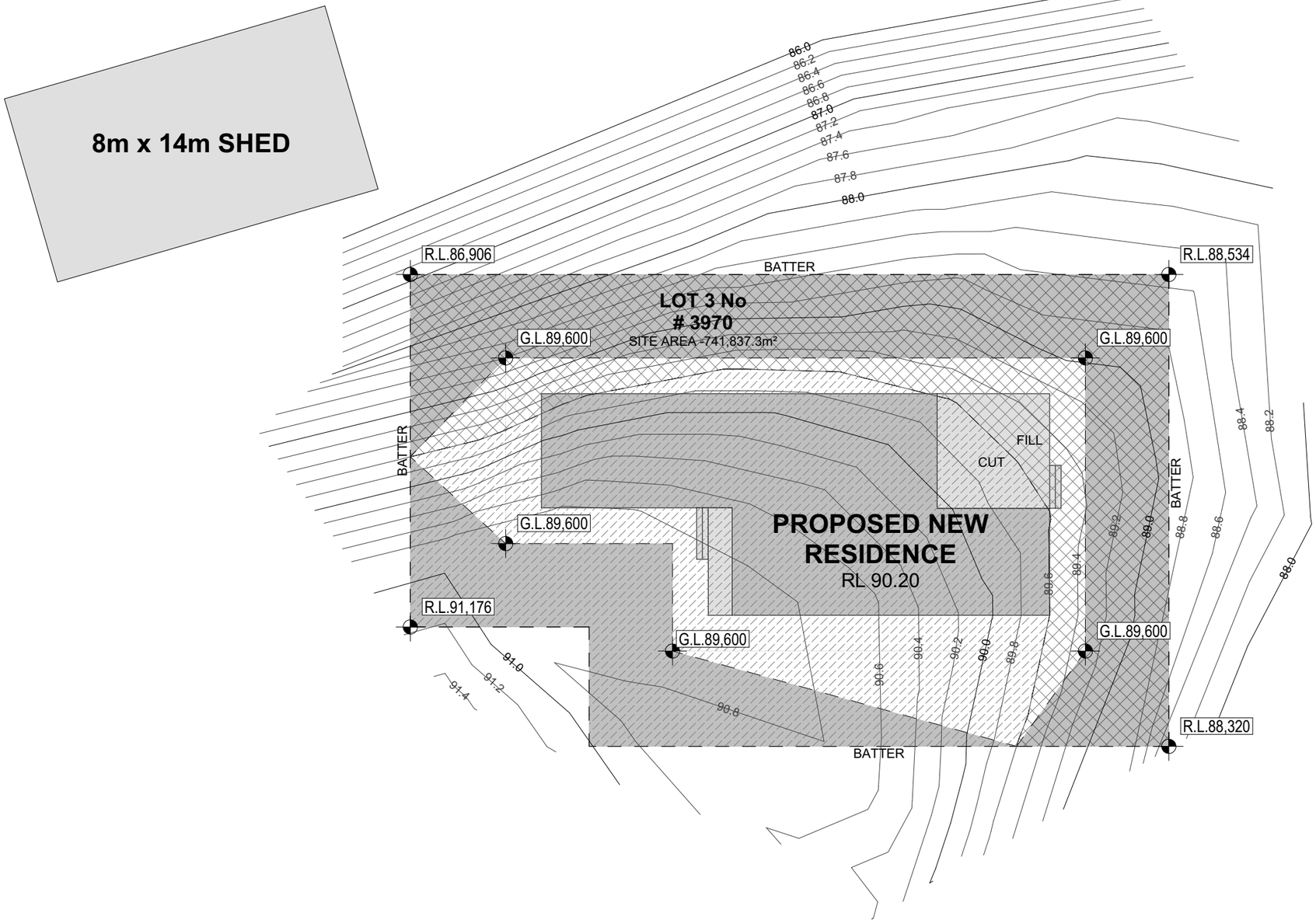
Project Number: **0054**	Sheet No: **5 of 13**	Revision: **PD-F**

N
NORTH POINT



3 **CONTOUR PLAN**
SCALE: 1:200

Client Approval

CLIENT INITIALS:

_ _ _ _

BUILDER INITIALS:

_ _ _ _

anchor homes
55 Industrial Road (Princes Hwy),
Stratford VIC 3862
T (03) 5145 7110 **F** (03) 5145 7155
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Project Title
HAMPTON 14
Client Name
BEN HOODLESS & PENNY HEARD
Address
Lot No. 3, #3970 Great Ocean Road
JOHANNA VICTORIA 3238
Drawing Title
CONTOUR PLAN

AREA CALCULATIONS

GROUND FLOOR	139.6
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	166.8 m²

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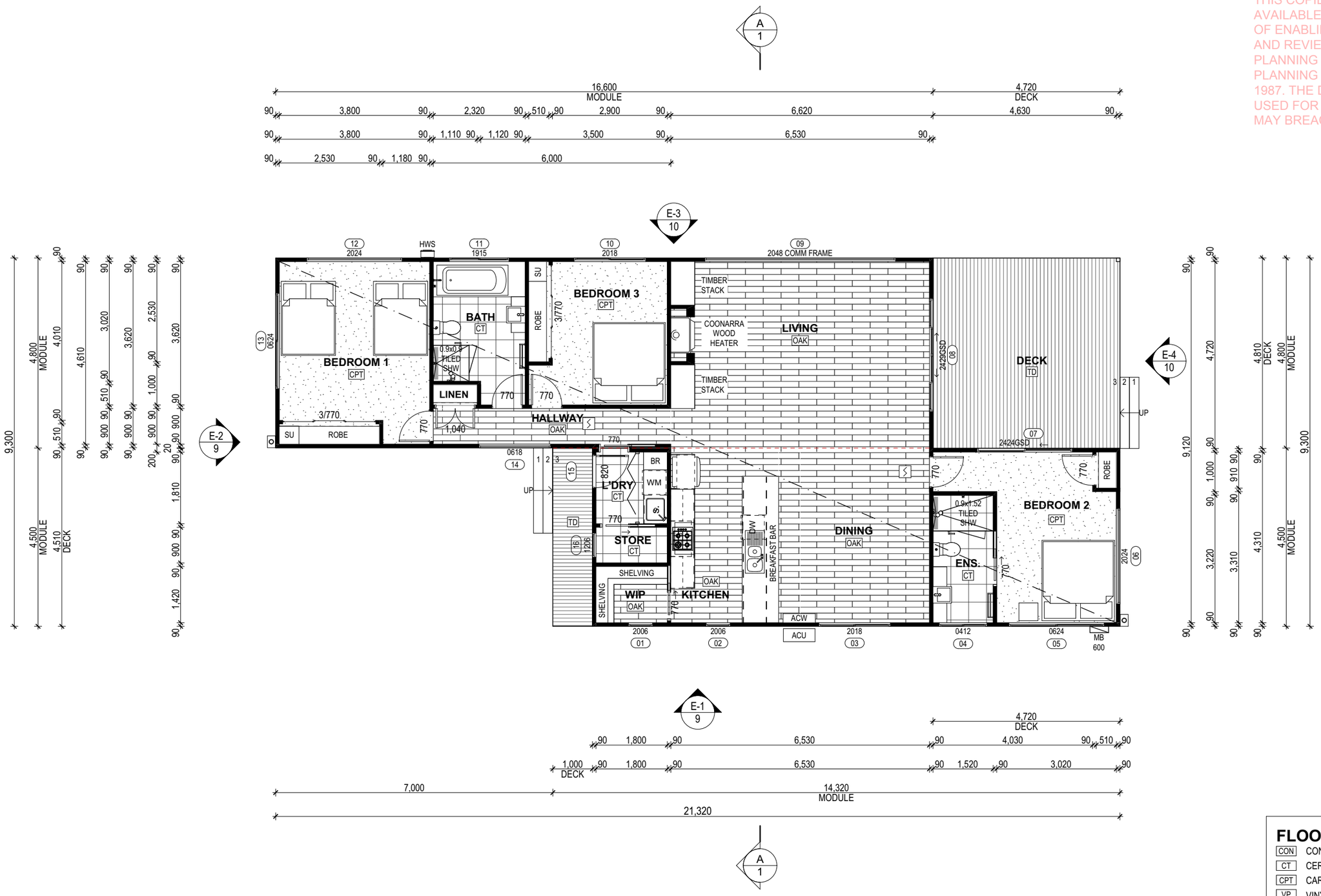
N
NORTH POINT



FLOOR PLAN LEGEND:

CON	CONCRETE SLAB
CT	CERAMIC TILES
CPT	CARPET
VP	VINYL PLANK FLOORING
OAK	ENG. OAK FLOORING
TD	TIMBER DECKING
DP	DOWN PIPE
SP	SPREADER

4 FLOOR PLAN
SCALE: 1:100

Client Approval

CLIENT INITIALS: _ _ _ _

BUILDER INITIALS: _ _ _ _

anchor homes
55 Industrial Road (Princes Hwy),
Stratford VIC 3862
T (03) 5145 7110 **F** (03) 5145 7155
REGISTERED Building Practitioner plus CPD

Project Title
HAMPTON 14
Client Name
BEN HOODLESS & PENNY HEARD
Address
Lot No. 3, #3970 Great Ocean Road
JOHANNA VICTORIA 3238
Drawing Title
FLOOR PLAN

AREA CALCULATIONS

GROUND FLOOR	139.6
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	166.8 m²

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PRELIMINARY DRAWINGS

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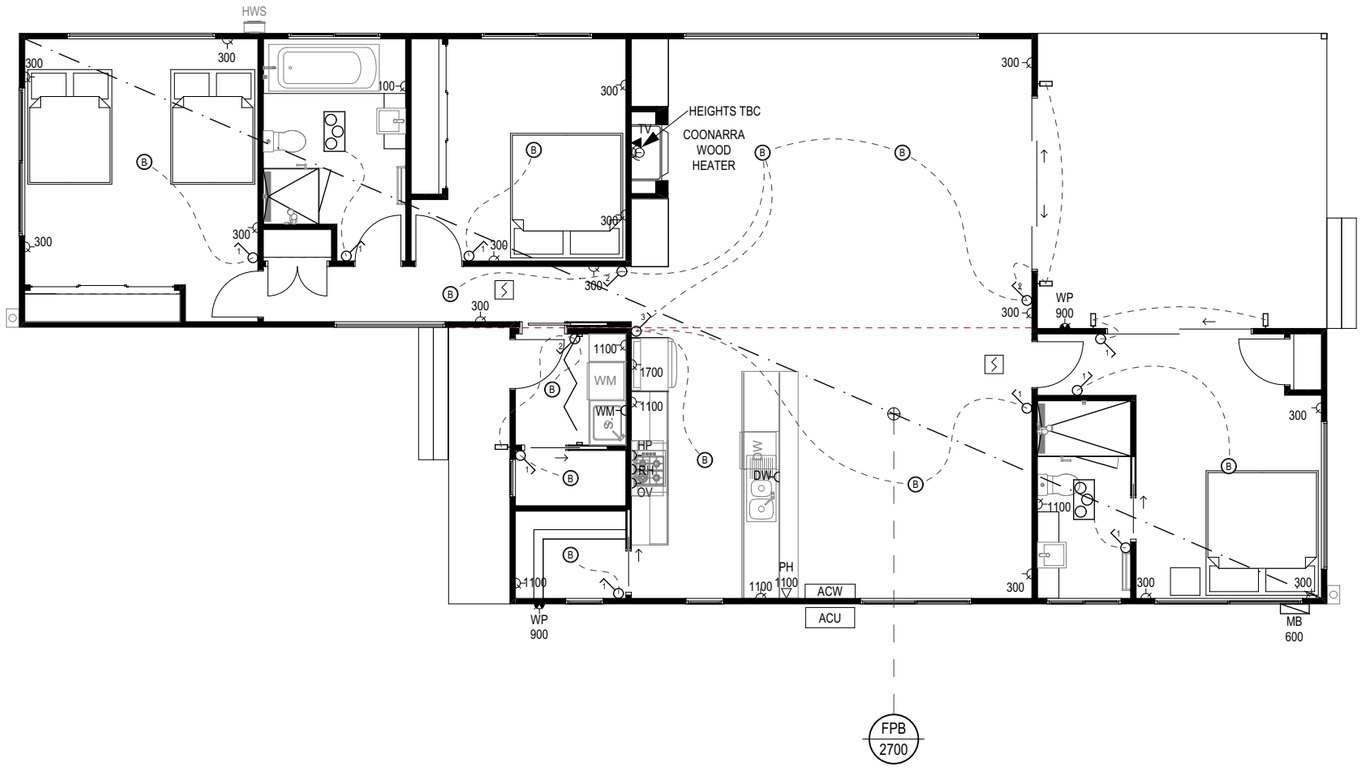
Project Number: **0054**	Sheet No: **7 of 13**	Revision: **PD-F**

N
NORTH POINT



5 ELECTRICAL PLAN
SCALE: 1:100

ELECTRICAL LEGEND:

- DOWNLIGHT
- B — BATTEN HOLDER CEILING LIGHT
- P — PENDANT LIGHT
- F — DOUBLE FLURO
- EXTERNAL WALL LIGHT
- PAR 38 SPOT LIGHT
- EXHAUST FAN
- 3 IN 1 TASTIC
- SWITCH POINT
- PH 1200 — TELEPHONE POINT
- TV 1200 — TELEVISION POINT
- HP — HOT PLATE POWER
- OV — OVEN POWER
- RH — RANGEHOOD POWER
- 300 — DOUBLE GPO
- 300 — SINGLE GPO
- WP 300 — WEATHER PROOF DOUBLE GPO
- SMOKE DETECTOR
- SB 1200 — SUB-BOARD
- MB 600 — METER BOX

CF - CEILING FAN

CFL - CEILING FAN & LIGHT

FPB 000
- FPB - FLUSH PLASTERB'D CEILING LINING
- RAKED - DENOTES RAKED CEILING
- 000 - DENOTES CEILING HEIGHT

ACW — WALL MOUNTED AIR-CONDITIONER UNIT

ACU — AIR-CONDITIONER - OUTDOOR UNIT

ADDITIONAL ELECTRICAL NOTES:

- Smoke alarms to be connected to consumer main power where consumer power is connected to the building
- Smoke alarms to be interconnected and comply with AS3786
- Refer to NCC 2015 3.7.2.3

Client Approval

CLIENT INITIALS: _ _ _ _

BUILDER INITIALS: _ _ _ _

anchor homes
55 Industrial Road (Princes Hwy),
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Project Title
HAMPTON 14
Client Name
BEN HOODLESS & PENNY HEARD
Address
Lot No. 3, #3970 Great Ocean Road
JOHANNA VICTORIA 3238
Drawing Title
ELECTRICAL

AREA CALCULATIONS

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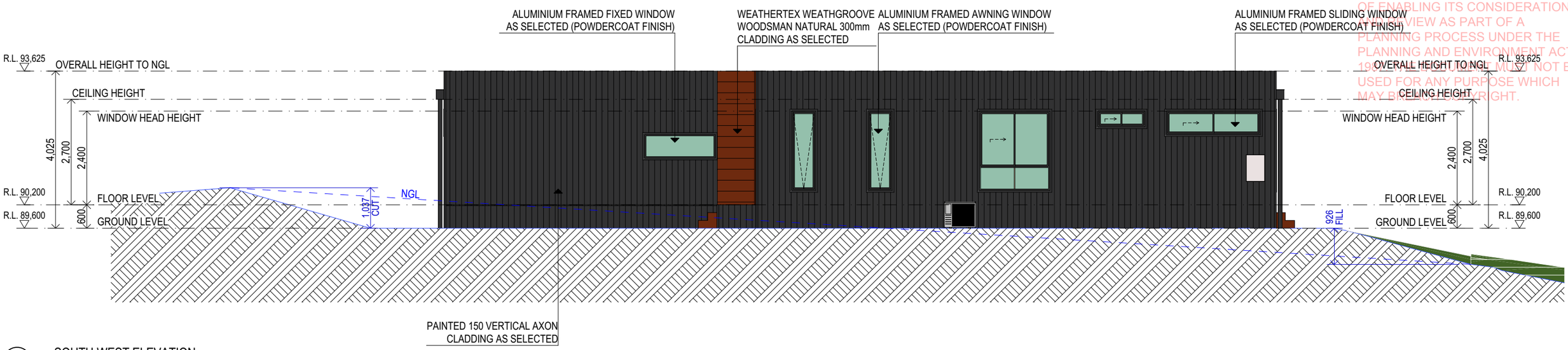
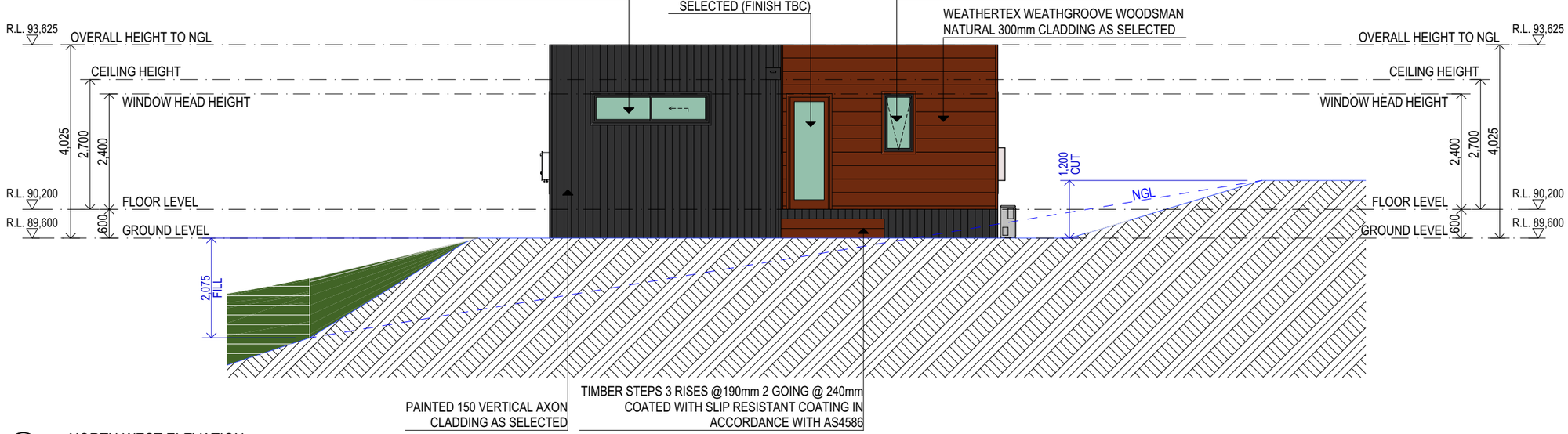


E-1 SOUTH WEST ELEVATION
SCALE: 1:100



E-2 NORTH WEST ELEVATION
SCALE: 1:100

Client Approval

CLIENT INITIALS: _ _ _ _

BUILDER INITIALS: _ _ _ _

anchor homes
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ELEVATIONS

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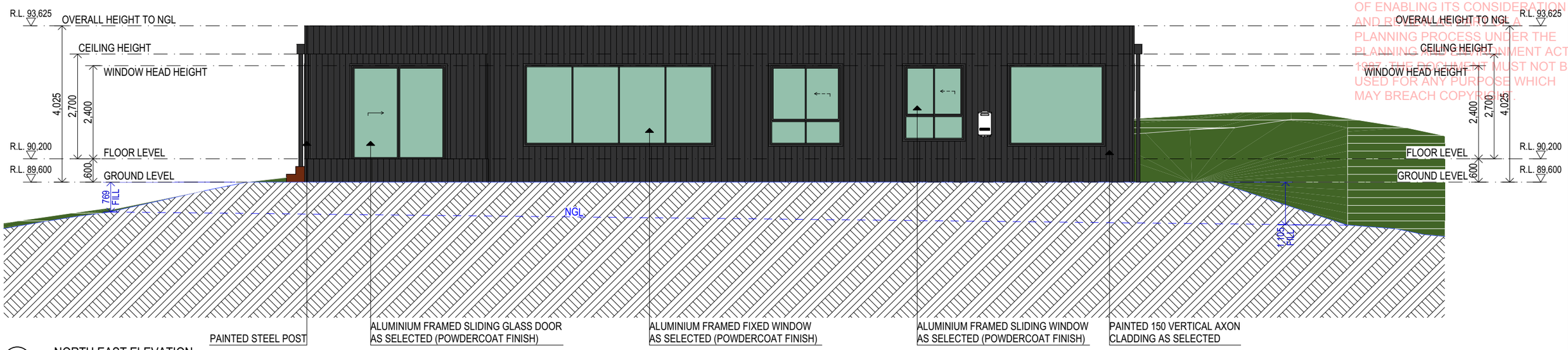
Project Number: **0054**	Sheet No: **9 of 13**	Revision: **PD-F**

NORTH POINT



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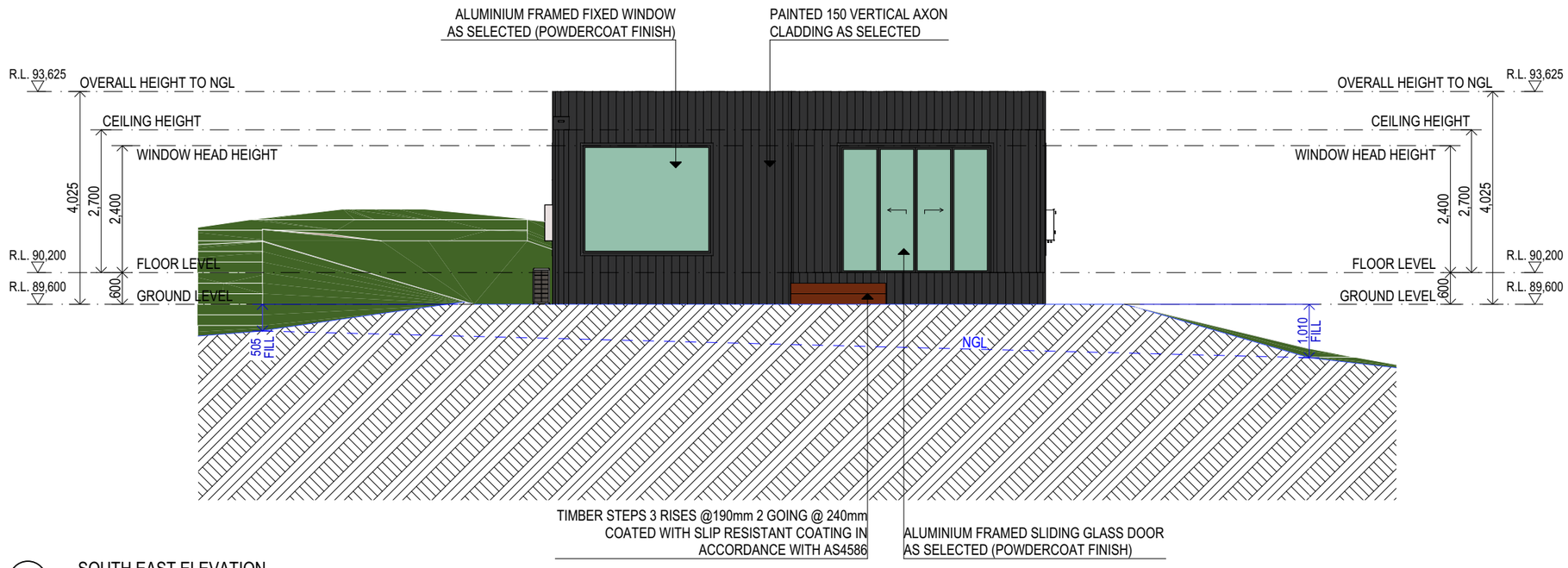

E-4 SOUTH EAST ELEVATION
SCALE: 1:100

Client Approval

CLIENT INITIALS: _ _ _ _

BUILDER INITIALS: _ _ _ _

anchor homes
55 Industrial Road (Princes Hwy),
Stratford VIC 3862
T (03) 5145 7110 **F** (03) 5145 7155
REGISTERED Building Practitioner plus CPD

Project Title
HAMPTON 14
Client Name
BEN HOODLESS & PENNY HEARD
Address
Lot No. 3, #3970 Great Ocean Road
JOHANNA VICTORIA 3238
Drawing Title
ELEVATIONS

AREA CALCULATIONS

GROUND FLOOR	139.6
DECK	22.7
FRONT DECK	4.5
	166.8 m²

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Signed.....
Ken Raikes Vic. DB-U 2108 CB-L 43089 - NSW. 174651C

PRELIMINARY DRAWINGS

Date: 9/04/2019	Scale: As Noted	
Drawn By: AK	Checked:	
Project Number: **0054**	Sheet No: **10 of 13**	Revision: **PD-F**

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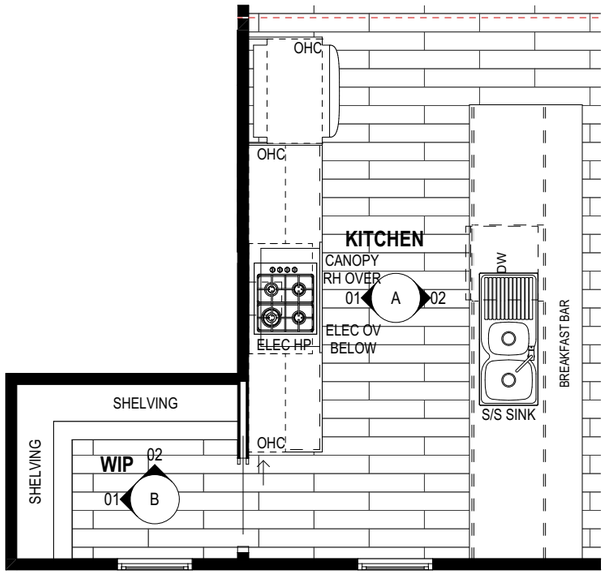
NORTH POINT



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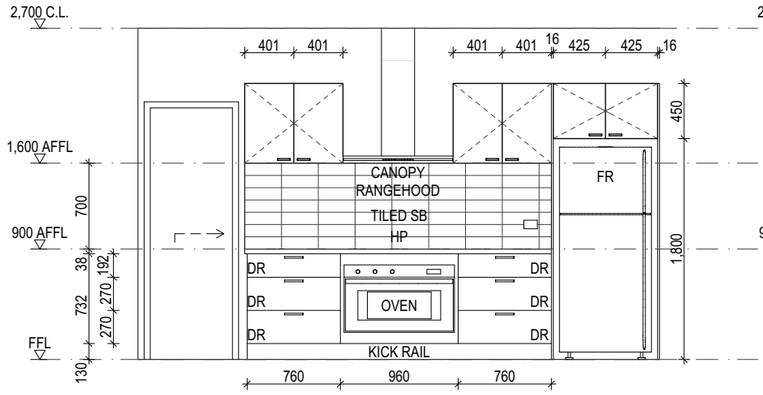

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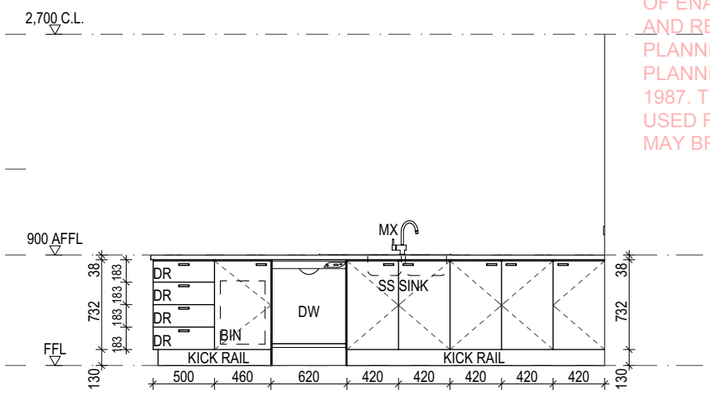

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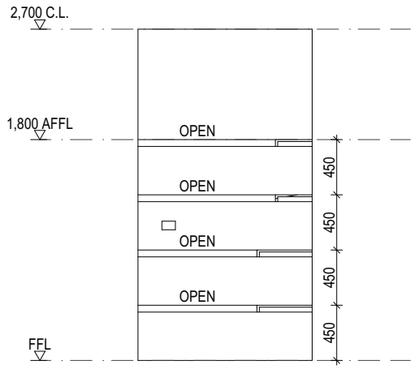

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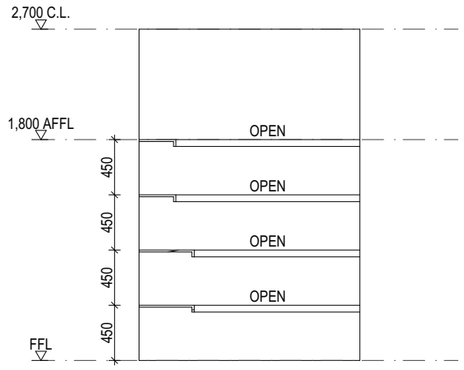

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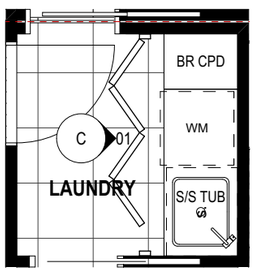

C LAUNDRY DETAIL PLAN
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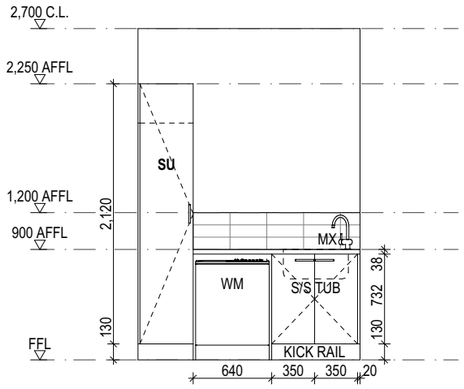

01 LAUNDRY INTERNAL ELEVATION
SCALE: 1:50

DW	DISHWASHER
FR	REFRIGERATOR RECESS
HP	HOTPLATE
MR	MICROWAVE RECESS
RH	RANGEHOOD
SP	SPLASHBACK
SSS	STAINLESS STEEL SINK
UBO	UNDER BENCH OVEN

Client Approval

CLIENT INITIALS: _ _ _ _

BUILDER INITIALS: _ _ _ _

anchor homes
55 Industrial Road (Princes Hwy),
Stratford VIC 3862
T (03) 5145 7110 **F** (03) 5145 7155
REGISTERED Building Practitioner plus CPD

Project Title
HAMPTON 14
Client Name
BEN HOODLESS & PENNY HEARD
Address
Lot No. 3, #3970 Great Ocean Road
JOHANNA VICTORIA 3238
Drawing Title
KITCHEN, WIP & LAUNDRY

AREA CALCULATIONS

GROUND FLOOR	139.6
DECK	22.7
FRONT DECK	4.5
	166.8 m²

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Signed.....
Ken Raikes Vic. DB-U 2108 CB-L 43089 - NSW. 174651C

PRELIMINARY DRAWINGS

Date: 9/04/2019	Scale: As Noted	
Drawn By: AK	Checked:	
Project Number: **0054**	Sheet No: **11 of 13**	Revision: **PD-F**

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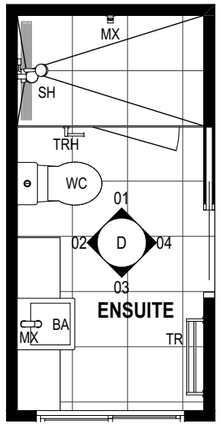

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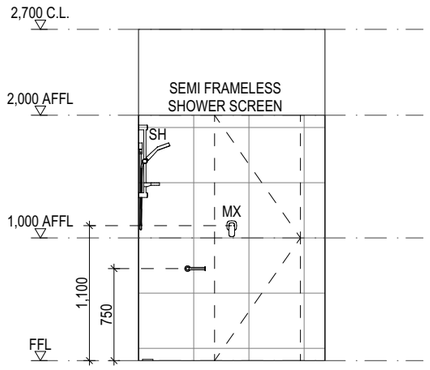

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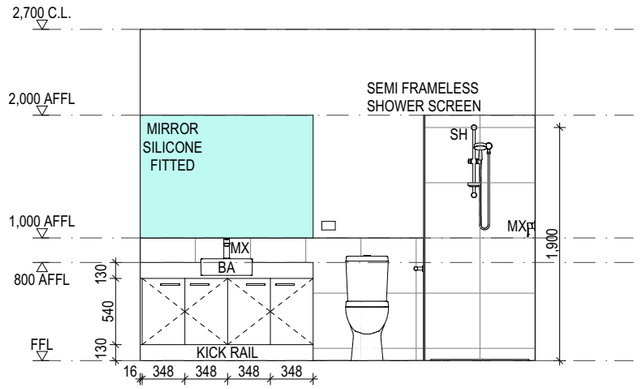

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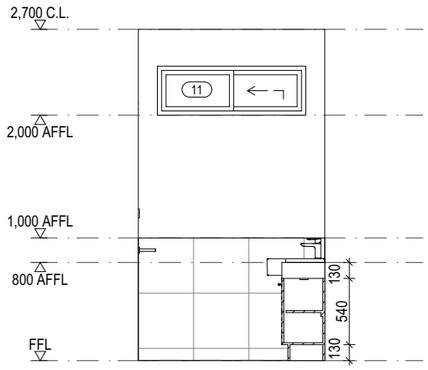

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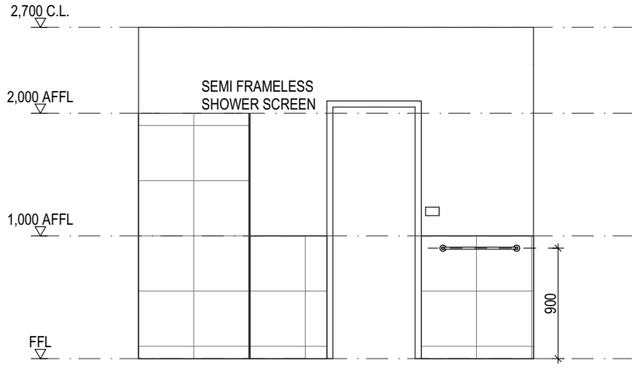

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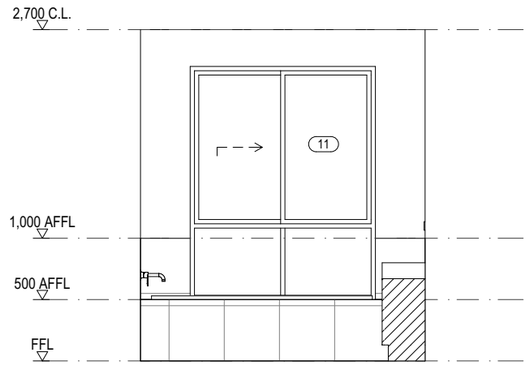

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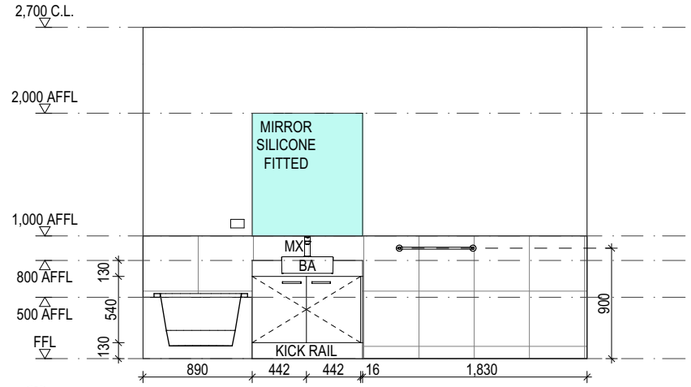

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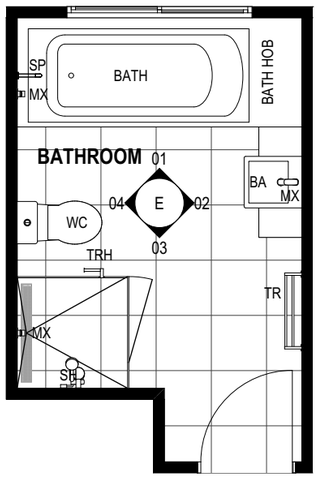

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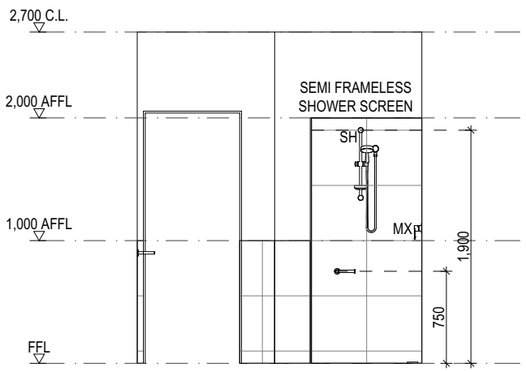

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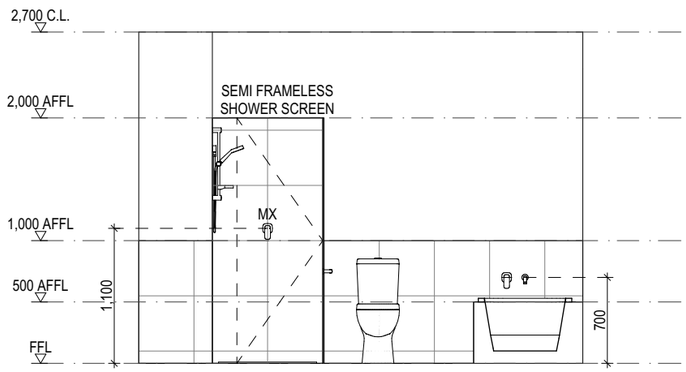

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SCALE: 1:50

LEGEND

TR	TOWEL RAIL
TRI	TOWEL RING
TRH	TOILET ROLL HOLDER
SH	SHOWER HEAD
MX	SHOWER MIXER
SU	SHELF UNIT
VB	VANITY BASIN
WC	TOILET
MI	MIRROR
GR	GRAB RAIL
WT	WALL TILE

Client Approval

CLIENT INITIALS: _ _ _ _

BUILDER INITIALS: _ _ _ _

anchor homes
55 Industrial Road (Princes Hwy),
Stratford VIC 3862
T (03) 5145 7110 **F** (03) 5145 7155
REGISTERED Building Practitioner plus CPD

Project Title
HAMPTON 14
Client Name
BEN HOODLESS & PENNY HEARD
Address
Lot No. 3, #3970 Great Ocean Road
JOHANNA VICTORIA 3238
Drawing Title
ENSUITE & BATHROOM

AREA CALCULATIONS

GROUND FLOOR	139.6
DECK	22.7
FRONT DECK	4.5
	166.8 m²

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Signed.....
Ken Raikes Vic. DB-U 2108 CB-L 43089 - NSW. 174651C

PRELIMINARY DRAWINGS

Date: 9/04/2019	Scale: As Noted	
Drawn By: AK	Checked:	
Project Number: **0054**	Sheet No: **12 of 13**	Revision: **PD-F**

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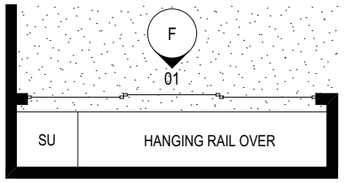

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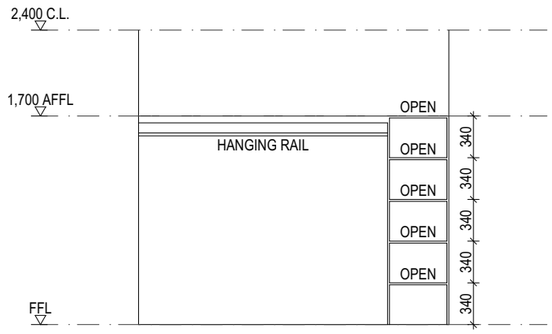

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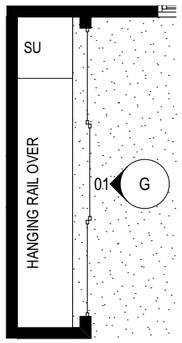

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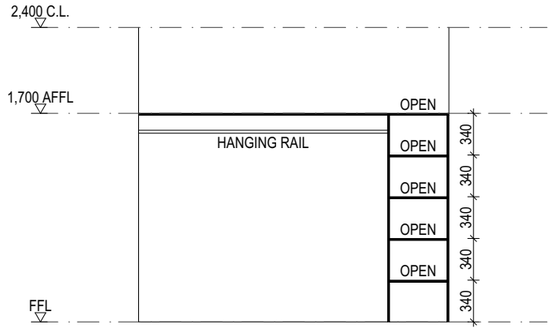

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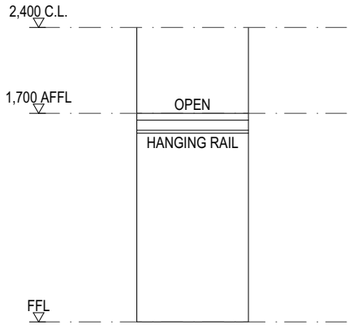

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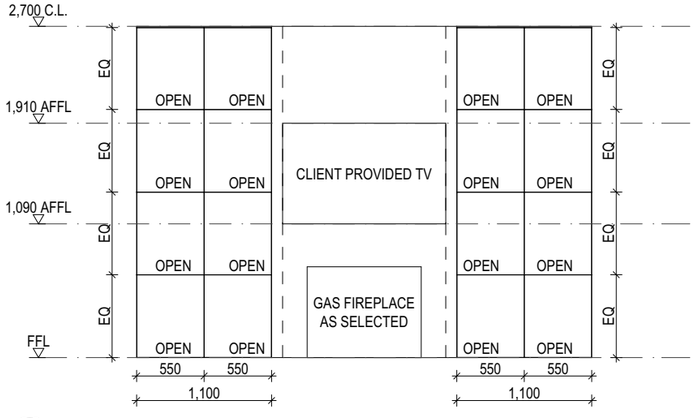

01 **TIMBER STACK INTERNAL ELEVATION**
SCALE: 1:50

Client Approval

CLIENT INITIALS: _ _ _ _

BUILDER INITIALS: _ _ _ _

anchor homes
55 Industrial Road (Princes Hwy),
Stratford VIC 3862
T (03) 5145 7110 **F** (03) 5145 7155
REGISTERED Building Practitioner plus CPD

Project Title
HAMPTON 14
Client Name
BEN HOODLESS & PENNY HEARD
Address
Lot No. 3, #3970 Great Ocean Road
JOHANNA VICTORIA 3238
Drawing Title
ROBE DETAILS

AREA CALCULATIONS

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DECK	22.7
FRONT DECK	4.5
	166.8 m²

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PRELIMINARY DRAWINGS

Date: 9/04/2019	Scale: As Noted	
Drawn By: AK	Checked:	
Project Number: **0054**	Sheet No: **13 of 13**	Revision: **PD-F**

N
NORTH POINT

From: Heather Raikes <heather.raikes@anchorhomes.com.au>
Sent: Wednesday, 3 April 2019 3:51 PM
To: Ian Williams
Subject: SAVED IN CM: RE: PP17/2019 - 3935 Great Ocean Road, Johanna - Request for additional information to Applicant
Attachments: 190403_Proposed Plantings_Hoodless & Heard.pdf; 190403_PP Application rev1 _Hoodless & Heard.pdf; 190403_Planning Report rev1_Hoodless & Heard.pdf; 190403_Indigenous Species for Johanna.pdf; 190403_RFI Response_Hoodless & Heard.pdf; 190401_Geotech Site Investigation_Hoodless & Heard.pdf

Good Afternoon Ian,

In response to Council's Request for Further Information dated 19.2.2019 we attach the following:

- RFI Response
- Planning Report rev1
- Planning Permit Application rev1
- Indigenous Species for Johanna
- Proposed Plantings Plan
- Revised Geotech Investigation

We believe this meets extra details required by Council and request our application be progressed and the requested permit issued in due course.

Should you require further information, please don't hesitate to contact us.

Kind regards,

Heather Raikes **| Contracts Administrator**

Office. 03 5145 7110
Web. www.anchorhomes.com.au | **Email.** heather.raikes@anchorhomes.com.au
Address. 55 Industrial Road, Stratford VIC 3862

From: Ian Williams <Ian.Williams@colacotway.vic.gov.au>
Sent: Thursday, 28 February 2019 12:38 PM
To: Heather Raikes <heather.raikes@anchorhomes.com.au>
Subject: PP17/2019 - 3935 Great Ocean Road, Johanna - Request for additional information to Applicant

Dear Heather,

Please see attached as discussed.

Regards,

Ian Williams
Senior Statutory Planner
Colac Otway Shire
Phone: (03) 5232 9522
Fax: (03) 5232 9586
Email: ian.williams@colacotway.vic.gov.au
Website: www.colacotway.vic.gov.au

"Please consider the environment before printing this e-mail"

From: INQ
Sent: Thursday, 21 February 2019 12:21 PM
To: 'raikes@anchorhomes.com.au'
Subject: PP17/2019 - 3935 Great Ocean Road, Johanna - Request for additional information to Applicant

Dear Heather,

Please see attached Council's request for additional information with regard to the current application.

I hope this information is of assistance to you.

Regards,

Ian Williams
Senior Statutory Planner
Colac Otway Shire
Phone: (03) 5232 9522
Fax: (03) 5232 9586

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Geotechnical Site Investigation

Lot 3 No 3935 Great Ocean Road Johanna VIC

Submitted To
Anchor Homes
Po Box 210
Sale VIC 3850

Site Number
116009

Date
29/03/2019

Author
Prageeth Edirisinghe

Published
29/03/2019

Document Revision: 1
Template Version: i
Template Name: Master with Cover

Intrax Consulting Engineers Pty Ltd
ABN: 31 106 481 252

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35 Bank Street
South Melbourne, Vic 3205
p: 03 8371 0100 f: 03 8371 0199
w: www.intrax.com.au

Table of Contents

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Direct Contact

Any questions or queries regarding this report should be directed to the Geotechnical Department, Engineering Team on 03 8371 0100 or scott.emmett@intrax.com.au.

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Document Revision History

Date	Rev	Author	Approved by	Comments
29-Mar-19	1	Prageeth Edirisinghe	Scott Emmett	Revised due to council review

List of Appendices

APPENDIX A: Site Plan, Borehole Logs and Landslide Map

APPENDIX B: Site Photography

APPENDIX C: AGD Good Hillside Practice

APPENDIX D: Geotechnical Declaration

REFERENCED STANDARDS:

AS 1726-2017, Geotechnical site investigations, Standards Australia, Sydney, Retrieved from SAI Global

AS 2870-2011, Residential slabs and footings, Standards Australia, Sydney, Retrieved from SAI Global

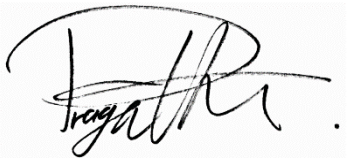
AS 3798-2007, Guidelines on earthworks for commercial and residential developments, Standards Australia, Sydney, Retrieved from SAI Global

AS 4678-2002, Earth-retaining structures, Standards Australia, Sydney, Retrieved from SAI Global

REPORT AUTHOR/S:

Mr Scott Emmett
Geologist
BSc (EarthScience) Hons, MAIG

Mr Prageeth Edirisinghe
Senior Geotechnical Engineer
BSc (Civil) Hons



REPORT CONTACT:

Prageeth Edirisinghe

03 8371 0100
Prageeth.e@intrax.com.au

Intrax Consulting Engineers Pty Ltd
Geotechnical Consultants
Unit 11, 85 Mt Derrimut Road
DEER PARK, VIC, 3023

1 Introduction

Intrax Consulting Engineers has completed a geotechnical investigation for the proposed residential development at Lot 3 No 3935 Great Ocean Road Johanna.

The investigation was carried out in accordance with the fee proposal QU11906 commissioned by Anchor Homes. The scope of the investigation is as follows

- Site Investigation in accordance with Australian Geomechanics Society – Landslide Risk Management Guidelines March 2007, and the Mornington Peninsula Planning Scheme - Erosion Management Overlay (EMO)
- Site Walk over and Hazard Identification
- Three (3) boreholes at a maximum depth of 1.8 m.
- Landslide Risk Assessment in accordance with the protocols' set out in AGS – LRM
- Landslide Risk Management recommendations
- Recommendations on footing, slab designs and earth retaining walls.
- Geotechnical design parameters for foundations and or retaining wall systems where required.
- Comment on any other geotechnical issues related to the projects involving this type of work.

This report outlines the geotechnical site investigation carried out on 29.11.2018.

2 Project and Site Description

2.1 Project Description

The proposed development is a single storey modular homes as outlined in the architectural drawings by Anchor Homes; Project Number: 0054, dated: 24th January 2019, revision: PD-F.

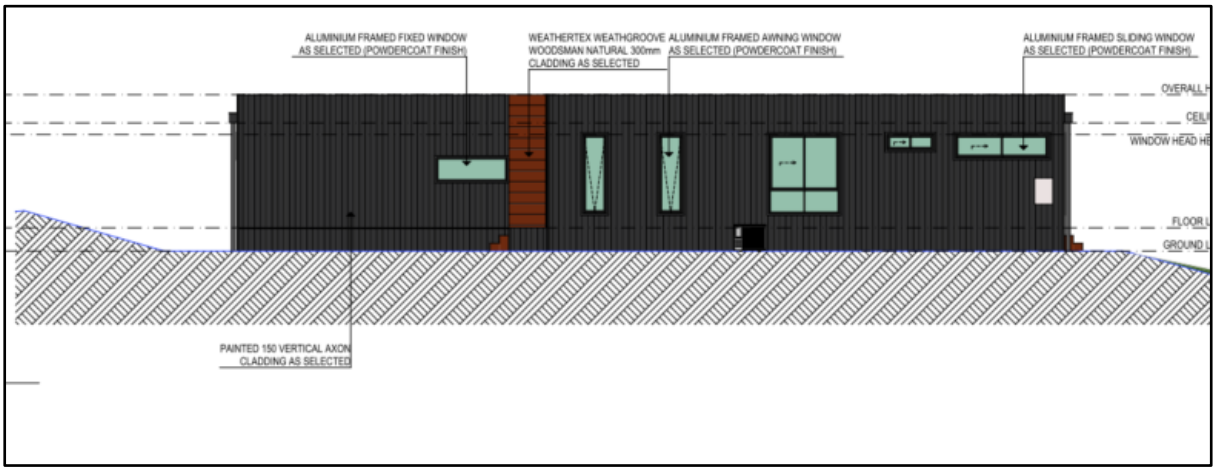


Figure 1: Proposed Development plan

2.2 Site Description

The investigated site, Lot 3 No No 3935 Great Ocean Road Johanna is an irregular shapes allotment covering an approximate area of 78 hectares. The site is located in the eastern flank of ridge formation of the area. The site contains a several spur ridges and the maximum slope measures along the sur ridge is about 20-25 degrees. Vegetation across the site is mainly consisted of tall native trees particularly located within the northern southern and eastern boundary of the site and at the central part of the lot. The ground cover is consisted of pasture.

Site conditions on the date of inspection are visible in the attached photography in Appendix B with the site features indicated in the site plan, refer Appendix A.

3 Method of Investigation

3.1 Desktop Assessment

Geological maps from the Geological Survey of Victoria, aerial photography and our local experienced were used to assess the anticipated site conditions and the area geology.

3.2 Fieldwork

The fieldwork consisted of drilling a total of three (3) boreholes to a maximum depth of 1.8 metres with solid flight auger powered by a Christie Engineering Hydraulic drill rig. The approximate locations of the boreholes are shown on the attached site plan in Appendix A. The subsurface materials were visually classified in accordance with AS1726-2017: *Geotechnical Site Investigation*.

4 Results of Investigation

4.1 Desktop Assessment

Investigation of geological maps from the Geological survey of Victoria has identified the expected site geology is Lower Cretaceous aged Sandstone Deposits. This geology was consistent with the visual identification of material on site. An extract of the local geological map is provided below.

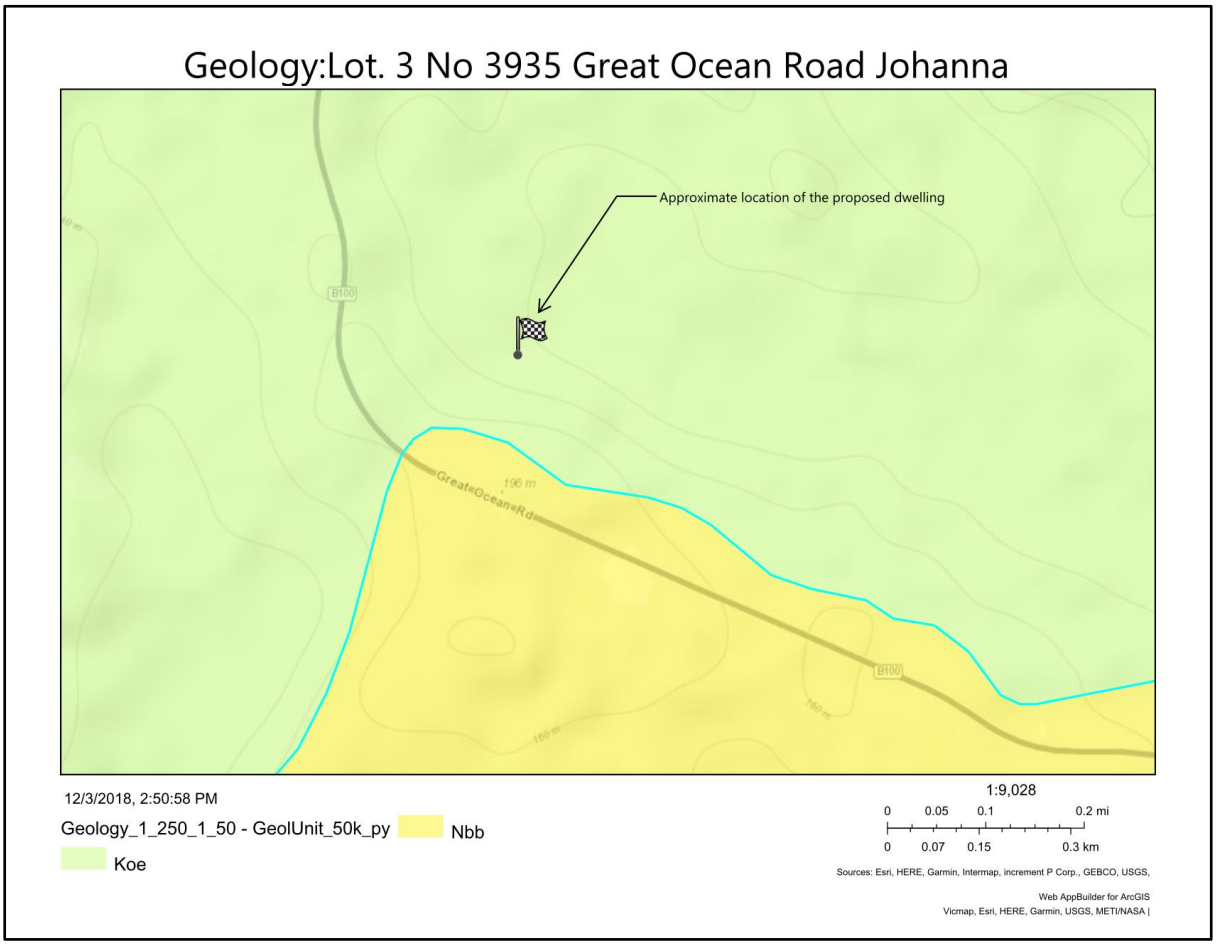


Figure 2: Extract of local geology, Intrax GIS database (Geovic Seamless)

4.2 Subsurface Conditions

The boreholes revealed the substrata typically consisted of the following soil profile. Variation from this profile existed across the site, refer to borehole logs in Appendix A for details.

TOP SOIL	Sandy SILT, grey, moist, loose
RESIDUAL	CLAY, medium plasticity, mottled grey orange, trace fine grained sand, w>PL, stiff to very stiff becoming, low to medium plasticity, clay soils with sand of orange mottled grey speckled white colour.
SANDSTONE	Extremely weathered, extremely low strength, pale grey mottled orange.

4.2.1 Ground Water

Groundwater was not intersected at a depth of 1.8 metres during borehole drilling. Visualising ground water Victoria (http://www.vvg.org.au), an online ground water table information source, predicts that the water table is expected be in the range between 20m to 50m below existing surface level.

Substrata conditions encountered are such that infiltration and occurrence of perched water at the interface between different material layers should not be disregarded. Any site excavation should take note of this.

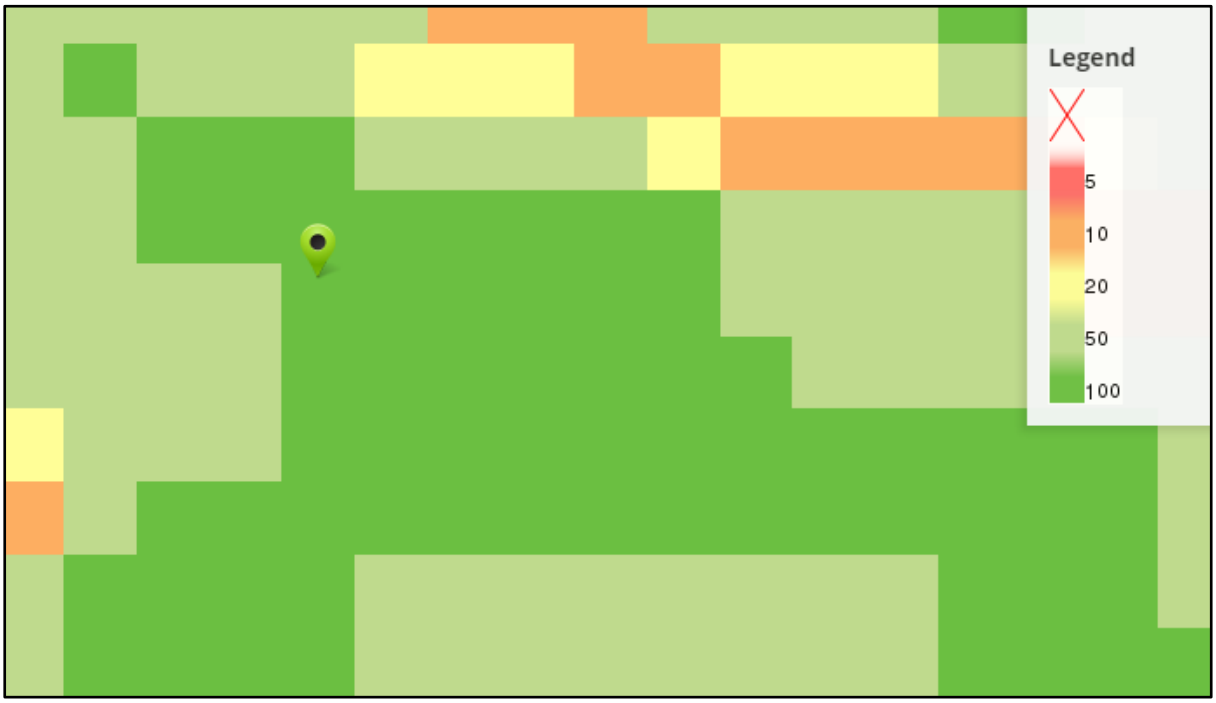


Figure 3: Depth to ground water

5 Discussion and Recommendations

5.1 Landslide Risk Analysis/Assessment

5.1.1 Risk Management Terminology

Risk is defined as a measure of the probability and severity of an adverse effect to health, property or the environment. (Australian Geomechanics Society Landslide Taskforce. 2007).

- Risk = the chance of an event times the consequences.

5.1.2 Hazard Identification and Likelihood

The identified hazards associated are summarised as follows:

a) The landslip event of new shallow earth SLIDE during prolonged rainy periods has the potential to undermine the structure proposed along the slope, which under a worst-case scenario could cause structural damage to the structure if it is not designed appropriately. Risk to life is not credible under this event.

   This office is of the opinion that the likelihood of this event is considered **"Unlikely"** for this site**.** This is justified by the current land use which will have limited alteration during the preparation stage as depicted in the architectural drawings. The cut could allow saturation of upper residual clay soils under a heavy or prolong rainy period.

b) Deep seated regional earth SLIDE/debris SLIDE. This type of landslip has the potential to severely damage the foundations of the subject property and potentially adjoining properties. This event could cause injury to, or loss of, life. In the event that the slide was fast to rapid, not giving sufficient warning to the inhabitants of the potential impact.

   Given that the site is underlain by a thin layer of residual clays over rock or weathered rock the likelihood of such an even considered to be **"Rare".** This office further reinforced above likelihood by no records of historical slope instability events have been recorded on this site. The closest instability event had been taken place approximately 500m to the north from the site. It was noted with this site that the topography of the area had increased slope angles.

c) Failure of unretained vertical cuts; proposed development slightly alters the site condition by a vertical cut approximately 1000mm below the surface level. As depicted in the architectural drawing proposed site cut is approximately middle of the lot. Vertical excavation through soils in this site likely to fail. This failure was proved in the computer modelling.

5.1.3 Risk Assessment for Property

The following table is a brief risk assessment to highlight the potential risk of landslides to the proposed development/allotment associated with the current hazards identified during the site inspection and fieldwork.

Landslide Event Earth slide or flow where:	Likelihood	Consequence	Risk
A. Shallow Earth Slides	Unlikely	Minor	**Low**
B. Deep seated regional earth slide/debris slide	Rare	Major/Medium	**Low**
C. Proposed vertical batter	Likely	moderate	**High**

Table 1: Landslide Risk Assessment

The above terminology is taken from the AGS Practice note guidelines for Landslide Risk Management (2007) – Appendix C (as reproduced below)

The events described above indicate a High risk where unrestrained cuts are adopted. These risk level implications are defined as follows:

PRACTICE NOTE GUIDELINES FOR LANDSLIDE RISK MANAGEMENT 2007

APPENDIX C: – QUALITATIVE TERMINOLOGY FOR USE IN ASSESSING RISK TO PROPERTY (CONTINUED)

QUALITATIVE RISK ANALYSIS MATRIX – LEVEL OF RISK TO PROPERTY

LIKELIHOOD		CONSEQUENCES TO PROPERTY (With Indicative Approximate Cost of Damage)				
	Indicative Value of Approximate Annual Probability	1: CATASTROPHIC 200%	2: MAJOR 60%	3: MEDIUM 20%	4: MINOR 5%	5: INSIGNIFICANT 0.5%
A – ALMOST CERTAIN	10^{-1}	VH	VH	VH	H	M or L (5)
B - LIKELY	10^{-2}	VH	VH	H	M	L
C - POSSIBLE	10^{-3}	VH	H	M	M	VL
D - UNLIKELY	10^{-4}	H	M	L	L	VL
E - RARE	10^{-5}	M	L	L	VL	VL
F - BARELY CREDIBLE	10^{-6}	L	VL	VL	VL	VL

Notes: (5) For Cell A5, may be subdivided such that a consequence of less than 0.1% is Low Risk.
(6) When considering a risk assessment it must be clearly stated whether it is for existing conditions or with risk control measures which may not be implemented at the current time.

RISK LEVEL IMPLICATIONS

Risk Level		Example Implications (7)
VH	VERY HIGH RISK	Unacceptable without treatment. Extensive detailed investigation and research, planning and implementation of treatment options essential to reduce risk to Low; may be too expensive and not practical. Work likely to cost more than value of the property.
H	HIGH RISK	Unacceptable without treatment. Detailed investigation, planning and implementation of treatment options required to reduce risk to Low. Work would cost a substantial sum in relation to the value of the property.
M	MODERATE RISK	May be tolerated in certain circumstances (subject to regulator's approval) but requires investigation, planning and implementation of treatment options to reduce the risk to Low. Treatment options to reduce to Low risk should be implemented as soon as practicable.
L	LOW RISK	Usually acceptable to regulators. Where treatment has been required to reduce the risk to this level, ongoing maintenance is required.
VL	VERY LOW RISK	Acceptable. Manage by normal slope maintenance procedures.

Note: (7) The implications for a particular situation are to be determined by all parties to the risk assessment and may depend on the nature of the property at risk; these are only given as a general guide.

Table 1:Extract Appendix C – AGS (2007

5.1.4 Recommendations – Risk Management

The acceptable risk criteria for the above site is considered to be LOW based on the requirements of the Colac Otway EMO.

This risk assessment indicates a **high** risk under **hazard C** which needs to be either managed, mitigated or removed. Therefore, to reduce the risk at this site to low levels the proposed development must adopt the mitigation measures as recommendations given below;

- It is understood that the proposed development will be supported on stump footing system and such footing must be founded a minimum 500mm in to naturally occurring extremely weathered SANDSTONE. The proposed development is a modular home so in addition to the above flexible or adjustable stumps are recommended.
- Drainage of the site platform must incorporate the use of swales which direct storm water flows to the legal point of discharge. Given the remote nature of this property the drainage of swales should be extended to a dam or rubble pit that is located a minimum of 40metres away from the proposed development.
- All vertical cuts within the site greater than 600mm, must be retained by an engineer designed retention system. It is recommended that the design engineer adopt imperial design parameters listed under section 5.4.1 during the assessment.

Following that above risk management items are carried out the risks for slope instability hazards that have been identified in this report are considered to have an acceptable risk level over the design life of the development where this development meets the criteria set out in the Colac Otway EMO1.

Please note: the given recommendation is highly susceptible for alteration to proposed conditions (shown in the architectural drawings). If proposed development alters the land use in architectural drawings provided to this office by Anchor homes, this office must be contacted for a review of the design parameters.

Note, good hillside practices should be adopted at all times when building on sites that may become unstable. The AGS - GEOGUIDES outlines good hillside practices and can be found attached to this document.

5.2 Recommendations

5.2.1 Site Classification

After considering the area geology, the soil profile encountered in the bores, and the climatic zone of the area, this site has been classified as CLASS P with respect to foundation construction (Australian Standard 2870-2011 Residential Slabs and Footings) due to prevailing abnormal moisture condition. It is anticipated that the seasonal surface movement under normal moisture conditions at this site will not exceed 40mm. Note that, this classification is only applicable to Class 1 and 10a structures in accordance with the Building Code of Australia, for other structures this classification should be used as a guide only.

5.2.2 Pad footings

Adjustable pad footings are an appropriate footing arrangement for the proposed structure. Based on the site investigation, pad footings founded at least 500mm into the extremely weathered SANDSTONE soils as described in the logs of boring can be assumed to have an allowable bearing pressure of 200kPa.

As a guide, and with regard to the above along with information obtained from the bores, the founding depths of shallow foundations at this site will be up to 1100mm below the existing surface.

The allowable bearing pressures provided in the report are the maximum values.

5.2.3 General Conditions – Foundations

Where footings are founded in different soil groups (especially reactive and non-reactive soils), the designer should provide articulation for the structure to accommodate to for potential damages which could be caused by differential movement of the soil due to seasonal moisture variation.

Note it is our preference that the design engineer adopt the same founding material across the structure where possible.

After excavation for the footings has been completed if there is any doubt as to the bearing capacity of the founding soil, then Intrax should be contacted and an inspection of the sites founding conditions carried out.

Foundations proposed for founding in and on existing fill, if any, then the fill must be stripped and the surface of the natural soil must be compacted with the soil in a moist condition. Stripped or imported fill meeting the minimum suitability requirements of section 4 of AS3798 must be placed at minimum 150mm uncompacted layers and each layer shall be compacted to minimum 98% dry density ratio at moisture contents between 90% and 110% of the optimum moisture content. Following the above ground preparation, an allowable bearing pressure of 80kPa can be assumed at 200mm below the compacted surface. Should additional filling depths exceed 1.0m it is recommended that a specification for earthworks be prepared.

5.3 Excavation and Retention

5.3.1 Retention Design Parameters

The following parameters established from Rankine's theory would be valid in the design of a retention system. These values assume that the soil being retained/supported has horizontal surface.

Table 2: Geotechnical soil and retention design parameters

Material Description	Unit weight (kN/m³)	Cu (kPa)	Friction angle (°)	Ka#	Kp#	Ko#
SILT/TOP SOIL	17	-	30	0.33	3.0	0.50
CLAY	18	55	26	0.39	2.56	0.56
XW-SANDSTONE	21	20	33	0.29	3.39	0.45

**Approximate depth based on borehole logs completed during geotechnical investigation*

#K_a, K_p and K_o are the active, passive and at-rest earth pressure coefficients.

The above parameters assume that the level of the water table is below the bottom of the excavation by the use of adequate drainage and that any adjacent surcharge loads are superimposed.

5.3.2 Storm water drainage

Site drainage is to be managed via sealed system that is installed above ground or as close to the surface as possible. We note stormwater will be collected in on site detention systems [rainwater tanks]. The overflow from these presents a potential issue as there is no legal point of discharge.

It was noted on site that stormwater overflow on the newly renovated property neighbouring this site is managed by an open AG drain at the base of the site.

This approach appears to be the only plausible option for excess stormwater flows.

It is recommended that construction of a storm water easement to the rear of the Dunoon street allotments be investigated by the local council as longer-term strategy to deal with storm water flows.

5.3.3 Wastewater

Reference Intrax report 116009 Land Capability Assessment Report

5.4 Inspections (Hold Points)

Intrax **must** be engaged at the following stages:

1. In the event soil conditions encountered differ significantly from those described within this report.
2. If project design is altered significantly from drawings reviewed and outlined or project described within this report

6 Limitations of Report

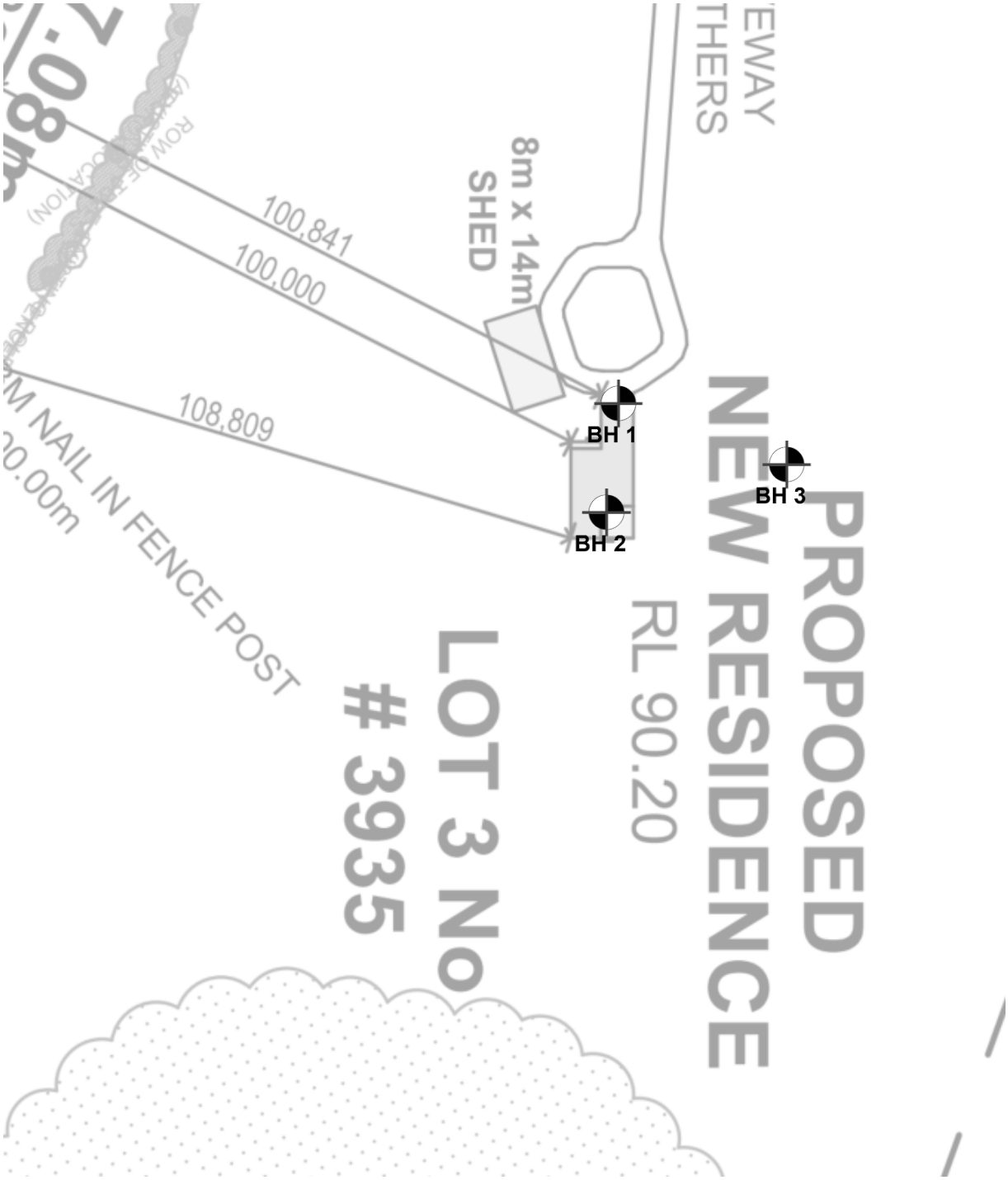
1. The recommendations in this report are based on the following:
    a. Information about the site & its history, proposed site treatment and building type conveyed to us by the client and or their agent
    b. Professional judgements and opinions using the most recent information in soil testing practice that is available to us.
    c. The location of our test sites and the information gained from this and other investigations.

    Should the client or their agent neglect to supply us with correct or relevant information, including information about previous buildings, trees or past activities on the site, or should changes be made to the building type, size and or/position, this report may be made obsolete, irrelevant or unsuitable. In such cases, Intrax will not accept any liability for the consequences and Intrax reserves the right to make an additional charge if more testing or a change to the report is necessary.
2. The recommendations made in this report may need to be reviewed should any site works disturb any soil 200mm below the proposed founding depth.
3. The descriptions of the soils encountered in the boreholes follow those outlined in AS1726-2017; Geotechnical Site Investigations. Colour descriptions can vary with soil moisture content and individual interpretation.
4. If the site conditions at the time of construction differ from those described in this report then Intrax must be contacted so a site inspection can be carried out prior to any footing being poured. The owner/builder will be responsible for any fees associated with this additional work.
5. This report assumes that the soil profile observed in the boreholes are representative of the entire site. If the soil profile and site conditions appear to differ substantially from those reported herein, then Intrax should be contacted immediately and this report may need to be reviewed and amended where appropriate. The owner/builder will be responsible for any fees associated with this additional work.
6. The user of this report must take into account the following limitations. Soil and drilling depths are given to a tolerance of +/- 200mm.

    It must be understood and a condition of acceptance of this report is that whilst every effort is made to identify fill material across the site, difficulties exist in determining fill material, in particular, for example, well compacted site or area derived fill, when utilising a small diameter auger. Consequently Intrax emphasises that we will not be responsible for any financial losses, consequential or otherwise, that may occur as a result of not accurately determining the fill profile across the site.
7. Finally, no responsibility will be taken for this report if it is altered in any way or is not reproduced in full.

Appendix A

Site Plan, Borehole Logs and Landslide Map



Client: Anchor Homes	Scale (A4): Not to scale	
Project: Lot. 3 No 3935 Great Ocean Road Johanna	Date: 3.12.2018	
	Sheets: 1	
Drawing: Site Plan	Project No. 116009	Ver. 1

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Borehole Log:	**BH1**	**Sheet:**	**1 of 1**
Client:	Anchor Homes	Drill Rig:	-
Project:	Proposed Residential Development	Logged:	PE & JH
Location:	Refer to Plan	Date:	29.11.2018

Intrax Engineering Confidence — Civil, Forensic, Hydraulic, Structural, Surveying, Residential, Geotechnical, Building Services

Method	Depth (metres)	Material Description	Soil Classification	Moisture	Consistency / Density	Structure, Origin, Water and Additional Observations	Sample or Field Test
PH	0.00	TOPSOIL-sandy SILT; grey	ML	M	L	Grass roots	
		CLAY, medium plasticity, mottled grey orange trace fine grained sand	Cl	>PL	St-Vst	Residual	
	0.50						
		low to medium plasticity, orange mottled grey speckled white, with medium grained sand					
	1.00						
		SAND (extremely weathered SANDSTONE); fine to medium grained, pale grey mottled orange trace clay	XW	M	MD	Sandstone	
	1.50						
		End of borehole no refusal, target depth reached No ground water encountered					
	2.00						
	2.50						
	3.00						
	3.50						
	4.00						
	4.50						
	5.00						

This borehole log is to be read in conjunction with the explanatory notes appended to the set of logs. This borehole log is not be reproduced without the full inclusion of all explanatory notes.

Borehole Log:	**BH2**	**Sheet:**	**1 of 1**
Client:	Anchor Homes	Drill Rig:	-
Project:	Proposed Residential Development	Logged:	PE & JH
Location:	Refer to Plan	Date:	29.11.2018

Method	Depth (metres)	Material Description	Soil Classification	Moisture	Consistency / Density	Structure, Origin, Water and Additional Observations	Sample or Field Test
PH	0.00	TOPSOIL-sandy SILT; grey	ML	M	L	Grass roots	
	0.50	CLAY, medium plasticity, grey brown mottled orange trace fine grained sand	Cl	>PL	St-Vst	Residual	
	1.00	low to medium plasticity, orange mottled grey speckled white, with medium grained sand					
	1.50	clayey SAND (extremely weathered SANDSTONE); fine to medium grained, mottled pale grey orange trace fine to medium grained angular gravels	XW	M	MD	Sandstone	
	2.00	End of borehole no refusal, target depth reached No ground water encountered					
	2.50						
	3.00						
	3.50						
	4.00						
	4.50						
	5.00						

This borehole log is to be read in conjunction with the explanatory notes appended to the set of logs. This borehole log is not be reproduced without the full inclusion of all explanatory notes.

Borehole Log:	**BH3**	**Sheet:**	**1 of 1**
Client:	Anchor Homes	Drill Rig:	-
Project:	Proposed Residential Development	Logged:	PE & JH
Location:	Refer to Plan	Date:	29.11.2018

Method	Depth (metres)	Material Description	Soil Classification	Moisture	Consistency / Density	Structure, Origin, Water and Additional Observations	Sample or Field Test
PH	0.25	TOPSOIL-sandy SILT; grey	ML	M	L	Grass roots	
	0.65	CLAY, medium plasticity, grey to mottled grey brown orange, trace fine grained sand	Cl	>PL	St-Vst	Residual	
		low to medium plasticity, orange mottled grey speckled white, with medium grained sand					
	1.00	clayey SAND (extremely weathered SANDSTONE); fine to medium grained, mottled pale grey orange trace fine to medium grained angular gravels	XW	M	MD	Sandstone	
	1.50						
	2.00	End of borehole no refusal, target depth reached No ground water encountered					
	2.50						
	3.00						
	3.50						
	4.00						
	4.50						
	5.00						

This borehole log is to be read in conjunction with the explanatory notes appended to the set of logs. This borehole log is not be reproduced without the full inclusion of all explanatory notes.

EXPLANATION OF NOTES, ABBREVIATIONS & TERMS USED ON BOREHOLE AND TEST PIT LOGS

DRILLING/EXCAVATION METHOD

HA	Hand Auger	W	Washbore	PT	Push Tube
MA-	Mechanical Auger Drilling	HQ	Diamond Core - 63 mm	EX	Excavator
-V	V-Bit	NMLC	Diamond Core - 52 mm	HAD	Hollow Auger Drilling
-TC	TC-Bit, e.g. ADT	NQ	Diamond Core - 47 mm		

PENETRATION/EXCAVATION RESISTANCE

L	Low resistance. Rapid penetration possible with little effort from the equipment used.
M	Medium resistance. Excavation/possible at an acceptable rate with moderate effort from the equipment used
H	High resistance. Further penetration is possible at a slow rate and requires significant effort from the equipment
R	Refusal or Practical Refusal. No further progress possible without the risk of damage or unacceptable wear to the digging implement or machine.

These assessments are subjective and are dependent on many factors including the equipment power, weight, condition or excavation or drilling tools, and experience of the operator.

WATER

∇	Water level at date shown	$\Leftarrow$	Partial water loss
$\Rightarrow$	Water inflow	$\|\Leftarrow\|$	Complete water loss

NO	Ground Water Not Observed: Ground water obersvation not possible. Ground water may or may not be present
NE	Ground Water Not Encountered: Ground water was not evident during excavation or a short time after completion. However, groundwater could be present in less permeable strata. Inflow may have been observed had the borehole/test pit been left open for a longer period.

SAMPLING AND TESTING

SPT	Standard Penetration Test to AS1289.6.3.1 - 2004
3,6,9 N=15	3,6,9 = blows per 150mm. N = blows per final 300mm penetration
30/80mm	Practical refusal, with blows and depth of penetration before refusal occurred
RW	Penetration caused under rod weight only
HW	Penetration caused under hammer and rod weight only
HB	Hammer bounce without penetration
R	Refusal to test
DCP	Dynamic Cone Penetrometer Test to AS1289.6.3.2 - 1997
DCP (p)	Dynamic Cone Penetrometer Test to AS1289.6.3.3 - 1997 Perth Sand Penetrometer
6	6 = blows per 100mm of penetration

DS	Disturbed sample
BDS	Bulk disturbed sample
U63	Undisturbed thin wall push tube sample, nominal sample diameter denoted in millimetres
W	Water sample
G	Gas sample
V	pilcon shear vane (kPa)
PP	Pocket penetrometer (kPa)
FP	Field permeability test over section noted
ES	Environmental sample
PI	Plastic Index (%)
PL	Plastic Limit (%)
LL	Liquid Limit (%)
MC	Moisture Content (%)
CBR	Californian Bearing Ration (%)

ROCK CORE RECOVERY

TCR = Total Core Recovery (%)

$$= \frac{Length\ of\ core\ recovered}{Length\ of\ core\ run} \times 100$$

RQD = Rock Quality Designation (%)

$$= \frac{\sum Axial\ lengths\ of\ core > 100\ mm}{Length\ of\ core\ run} \times 100$$

EXPLANATION OF NOTES, ABBREVIATIONS & TERMS USED ON BOREHOLE AND TEST PIT LOGS - SOIL DESCRIPTION (AS1726 - 2017)

SOIL CLASSIFICATION SYSTEM

Coarse Grained Soil

GW	Well graded gravels, gravel-sand mixtures, little or no fines
GP	Poorly-graded gravels, gravel-sand mixtures, little or no fines, uniform gravels
GM	Silty gravels, gravel-sand-silt mixtures
GC	Clayey gravels, gravel-sand-clay mixtures
SW	Well-graded sands, gravelly sands, little or no fines
SP	Poorly-graded sands, gravelly sand, little or no fines
SM	Silty sands, sand-silt mixtures
SC	Clayey sands, sand-clay mixtures

Fine Grained Soils

ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or silts with low plasticity
CL, CI	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays
OL	Organic silts and organic silty clays of low plasticity
MH	Inorganic silts, micaceous or diatomaceous fine sand for silty soils
CH	Inorganic clays of high plasticity
OH	Organic clays of medium to high plasticity, organic silts
PT	Peat, humus, swamp soils with high organic contents

First Letter: G = Gravel, S = Sand, M = Silt, C = Clay; Second Letter: W = Well-graded, P = Poorly-graded, M = Mixture, O = Organic, L = Low plasticity, H = High plasticity

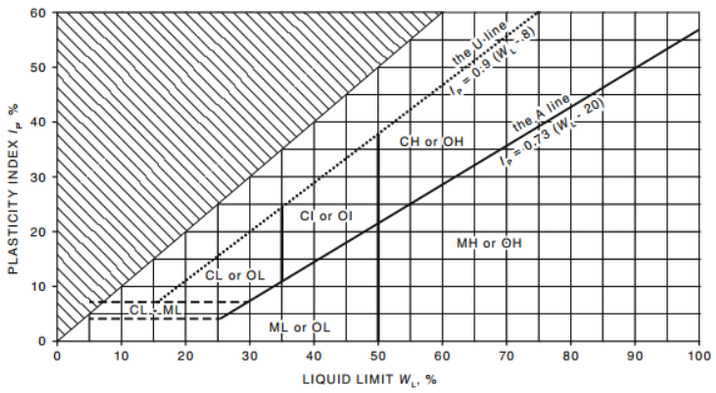
Soils may be a combination of multiple soil classifications where borderline

PARTICLE SIZE

Soil	Major Division	Sub-Division	Particle Size (mm)
Coarse	Boulders		>200
	Cobbles		63 - 200
	Gravel	Coarse	20 - 63
		Medium	6 - 20
		Fine	2.36 - 6
	Sand	Coarse	0.6 - 2.36
		Medium	0.2 - 0.6
		Fine	0.075 - 0.2
Fine	Silt		0.002 - 0.075
	Clay		< 0.002

0.075mm is the approximate minimum particle size discernible by eye

PLASTICITY CHART



MOISTURE CONDITION

Coarse	D	Dry	Sands and gravels are free flowing.
	M	Moist	Soils are darker than in the dry condition and may feel cool. Sands and gravels tend to cohere.
	W	Wet	Soils exude free water. Sands and gravels tend to cohere.
Fine	PL	Plastic Limit	Moisture content of fine grain soils are described; as below plastic limit (<PL), near to plastic limit (=PL), above plastic limit (>PL), near to the liquid limit (=LL), or above the liquid limit (>LL)
	LL	Liquid Limit	

CONSISTENCY AND DENSITY

Fine Grained Soils

			Pocket Pentrometer Reading (kPa)
VS	Very Soft	Exudes between fingers when squeezed	<25
S	Soft	Can be moulded by light finger pressure	20 - 50
F	Firm	Can be moulded by strong finger pressure	50 - 100
St	Stiff	Cannot be moulded by fingers. Can be indented by thumb	100 - 200
VSt	Very Stiff	Can be indented by thumb nail	200 - 400
H	Hard	Can be indented by thumb nail with difficulty	>400

Coarse Grained Soil

		Density Index %	'N' Value
VL	Very Loose	≤15	0 - 4
L	Loose	15 - 35	4 - 10
MD	Medium Dense	35 - 65	10 - 30
D	Dense	65 - 85	30 - 50
VD	Very Dense	>85	>50

SECONDARY OR MINOR SOIL COMPONENTS

Designation of components	In coarse grained soils				In fine grained soils	
	%Fines	Terminology	%Accessory Coarse Fraction	Terminology	%Sand/gravel	Terminology
Minor	≤5	'trace' clay/silt	≤15	'trace' sand/gravel	≤15	'trace' sand/gravel
	5 - 12	'with' clay/silt	15 - 30	'with' sand/gravel	15 - 30	'with' sand/gravel
Secondary	> 15	Prefix silty or clayey	>30	Prefix sandy or gravelly	>30	Prefix sandy or gravelly

EXPLANATION OF NOTES, ABBREVIATIONS & TERMS USED ON BOREHOLE AND TEST PIT LOGS - ROCK DESCRIPTION (AS1726 - 2017)

STRENGTH OF INTACT ROCK

Symbol	Term	Point Load Index, (I_{s50}) MPa	Field Guide to Strength
VL	Very Low	$0.03 \le I_{s50} < 0.1$	Material crumbles under firm blows with sharp end of pick; can be peeled with knife; pieces up to 30mm thick can be broken by finger pressure
L	Low	$0.1 \le I_{s50} < 0.3$	Easily scored with knife; indentations 1mm to 3mm after firm blow with pick point; core 150mm long and 50mm diameter can be broken by hand; sharp edges of core friable
M	Medium	$0.3 \le I_{s50} < 1.0$	Readily scored with knife; core 150mm long and 50mm diameter can be broken by hand with difficulty
H	High	$1.0 \le I_{s50} < 3$	Core 150mm long and 50mm diameter cannot be broken by hand but can be broken by single firm blow of pick; rock rings under hammer
VH	Very High	$3 \le I_{s50} < 10$	Hand held specimen breaks with pick after more than one blow; rock rings under hammer
EH	Extremely High	$10 \le I_{s50}$	Specimen requires many pick blows to break intact rock, rock rings under hammer

Material with rock strength less than 'Very Low' are described using soil properties

DEGREE OF ROCK WEATHERING

Term		Symbol		Definition
Residual Soil		RS		Soil derived from the weathering of rock; the mass structure and material fabric are no longer evident the soil has not been significantly transported.
Extremely Weathered		XW		Material is weathered to such an extent that it has soil properties, i.e. it either disintegrates or can be remoulded, in water. Fabric of original rock still visible.
Highly Weathered	Distinctly Weathered	HW	DW	Rock strength is changed by weathering. The whole of the rock material is discoloured, usually by iron staining or bleaching to the extent that the colour of the original rock is not recognizable. Some minerals are decomposed to clay minerals. Porosity may be increased by leach, or may be decreased due to deposition of weathering products in pores.
Moderately Weathered		MW		The whole of the rock material is discoloured, usually by iron staining or bleaching to the extent that the colour of the original rock is not recognisable, but shows little or no change of strength from fresh rock.
Slightly Weathered		SW		Rock is slightly discoloured but shows little or no change of strength from fresh rock
Fresh		FR		Rock shows no sign of decomposition or staining

Distinctly Weathered is to be used when it is not possible to differentiate between highly and moderately weathered.

Extremely Weathered material is to be described using soil properties

ROCK MASS PROPERTIES

Term	Separation of Stratification Planes
Thinly laminated	< 6mm
Laminated	6mm to 20 mm
Very thinly bedded	20mm to 60mm
Thinly bedded	60mm to 200mm
Medium bedded	0.2m to 0.6m
Thickly bedded	0.6m to 2.0m
Massive	< 2m

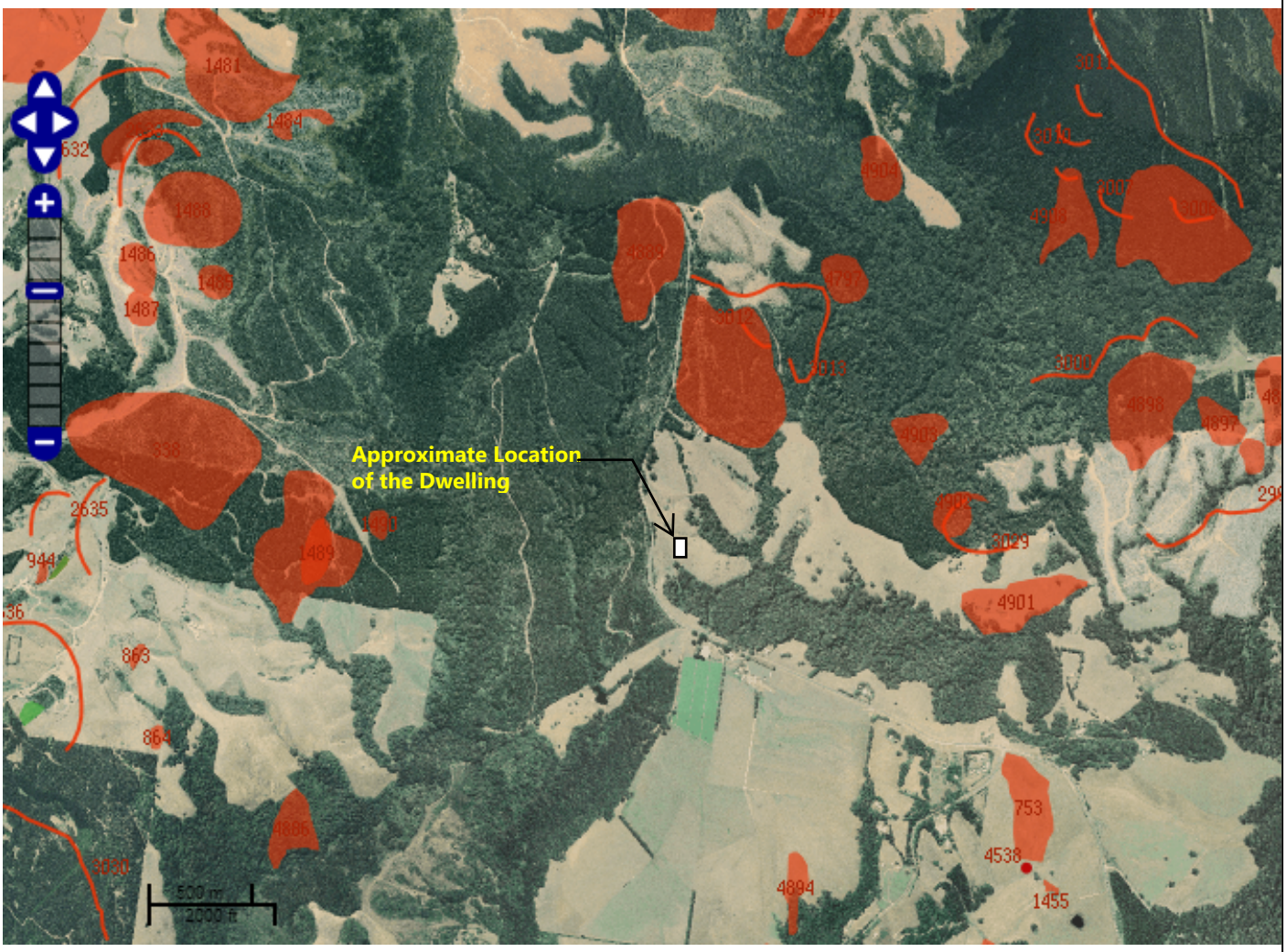
Term	Description
Fragmented	Primarily fragments < 20mm length and mostly of width < core diameter
Highly fractured	Core lengths generally less than 20mm to 40mm with occasional fragments
Fractured	Core lengths mainly 30mm to 100mm with occasional shorter and longer pieces
Slightly fractured	Core lengths generally 0.3m to 1.0m with occasional longer and shorter sections
Unbroken	Core has no fractures

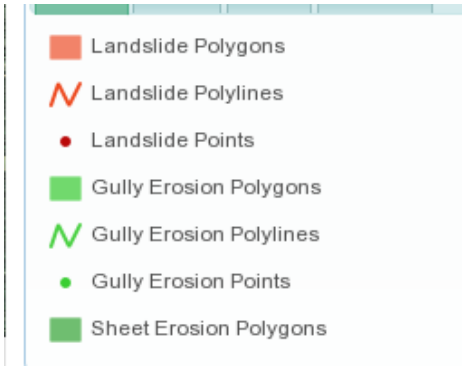
DEFECT TYPES AND DESCRIPTIONS

Defect Type		Defect Shape		Surface Roughness		Defect Coatings	
BR	Bedding parting	PL	Planar	VR	Very rough	CL	Clean
JT	Joint	ST	Stepped	RO	Rough	ST	Stained
SR	Sheared surface	CR	Curved	SM	Smooth	VN	Veneer
SZ	Sheared zone	IR	Irregular	PO	Polished	CT	Coating
SS	Sheared seam	UN	Undulating	SL	Slickenside		
CS	Crushed seam						
IS	Infill seam						
XS	Extremely Weathered Seam						

Vertical Boreholes - The dip of the defect is given from the horizontal

Inclined Boreholes - The angle of the defect is given from the core axis





Client: Anchor Homes	Scale (A4): Not to scale
Project: 3935, Great Ocean Road, Johanna, Vic, 3238	Date: 6.12.2018
	Sheets: 1
Drawing: Landslipe Events	Project No. 116009 / Ver. 1

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Appendix B

Site Photography

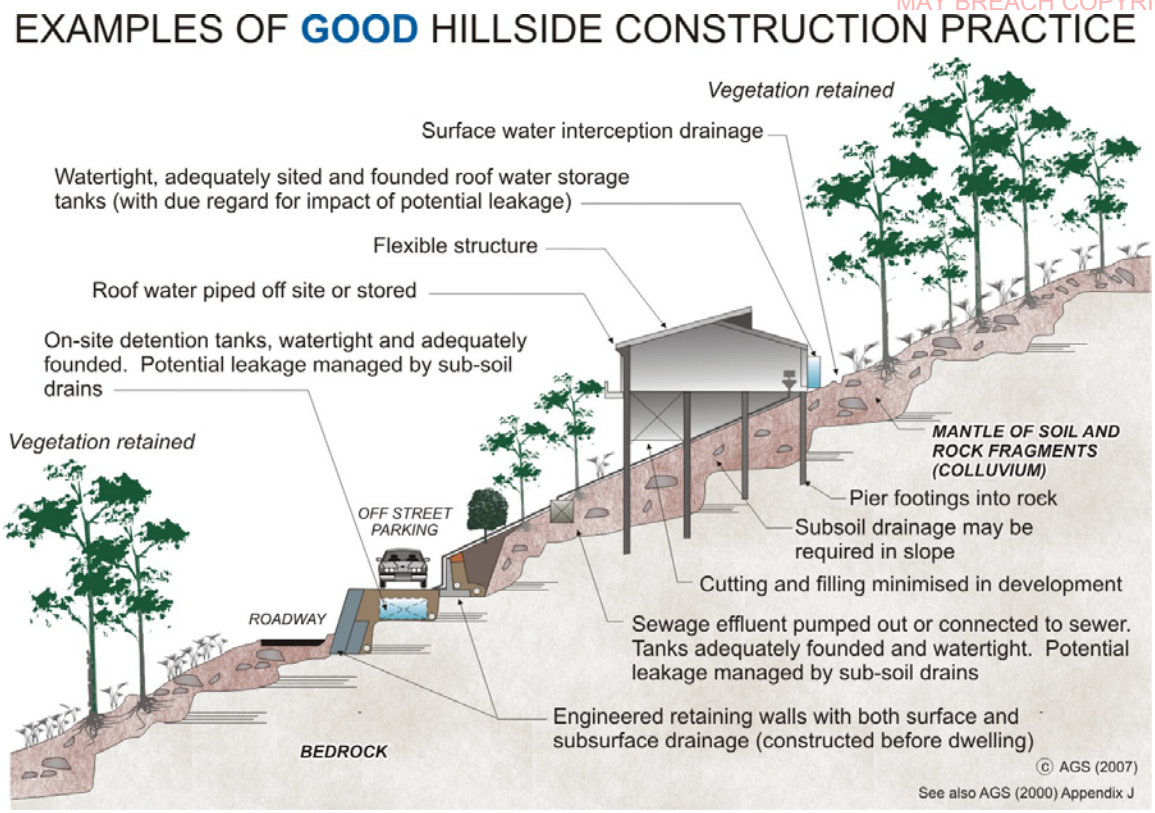
Appendix C

AGS Geoguide-Good Hillside Practice

AUSTRALIAN GEOGUIDE LR8 (CONSTRUCTION PRACTICE)

HILLSIDE CONSTRUCTION PRACTICE

Sensible development practices are required when building on hillsides, particularly if the hillside has more than a low risk of instability (GeoGuide LR7). Only building techniques intended to maintain, or reduce, the overall level of landslide risk should be considered. Examples of good hillside construction practice are illustrated below.



WHY ARE THESE PRACTICES GOOD?

Roadways and parking areas - are paved and incorporate kerbs which prevent water discharging straight into the hillside (GeoGuide LR5).

Cuttings - are supported by retaining walls (GeoGuide LR6).

Retaining walls - are engineer designed to withstand the lateral earth pressures and surcharges expected, and include drains to prevent water pressures developing in the backfill. Where the ground slopes steeply down towards the high side of a retaining wall, the disturbing force (see GeoGuide LR6) can be two or more times that in level ground. Retaining walls must be designed taking these forces into account.

Sewage - whether treated or not is either taken away in pipes or contained in properly founded tanks so it cannot soak into the ground.

Surface water - from roofs and other hard surfaces is piped away to a suitable discharge point rather than being allowed to infiltrate into the ground. Preferably, the discharge point will be in a natural creek where ground water exits, rather than enters, the ground. Shallow, lined, drains on the surface can fulfil the same purpose (GeoGuide LR5).

Surface loads - are minimised. No fill embankments have been built. The house is a lightweight structure. Foundation loads have been taken down below the level at which a landslide is likely to occur and, preferably, to rock. This sort of construction is probably not applicable to soil slopes (GeoGuide LR3). If you are uncertain whether your site has rock near the surface, or is essentially a soil slope, you should engage a geotechnical practitioner to find out.

Flexible structures - have been used because they can tolerate a certain amount of movement with minimal signs of distress and maintain their functionality.

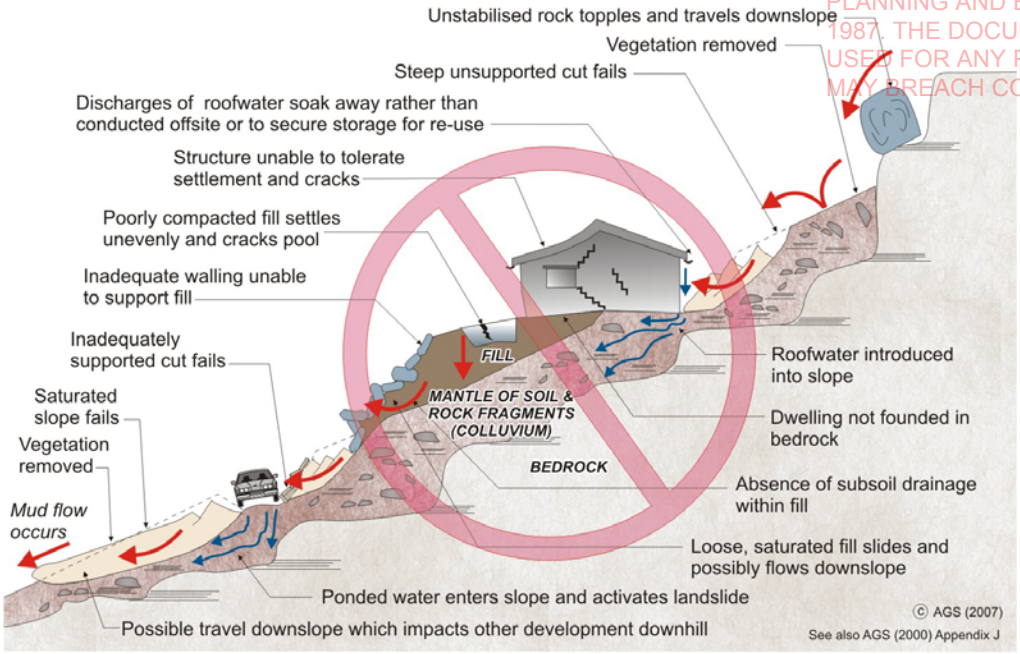
Vegetation clearance - on soil slopes has been kept to a reasonable minimum. Trees, and to a lesser extent smaller vegetation, take large quantities of water out of the ground every day. This lowers the ground water table, which in turn helps to maintain the stability of the slope. Large scale clearing can result in a rise in water table with a consequent increase in the likelihood of a landslide (GeoGuide LR5). An exception may have to be made to this rule on steep rock slopes where trees have little effect on the water table, but their roots pose a landslide hazard by dislodging boulders.

Possible effects of ignoring good construction practices are illustrated on page 2. Unfortunately, these poor construction practices are not as unusual as you might think and are often chosen because, on the face of it, they will save the developer, or owner, money. You should not lose sight of the fact that the cost and anguish associated with any one of the disasters illustrated, is likely to more than wipe out any apparent savings at the outset.

ADOPT GOOD PRACTICE ON HILLSIDE SITES

AUSTRALIAN GEOGUIDE LR8 (CONSTRUCTION PRACTICE)

EXAMPLES OF **POOR** HILLSIDE CONSTRUCTION PRACTICE



WHY ARE THESE PRACTICES POOR?

Roadways and parking areas - are unsurfaced and lack proper table drains (gutters) causing surface water to pond and soak into the ground.

Cut and fill - has been used to balance earthworks quantities and level the site leaving unstable cut faces and added large surface loads to the ground. Failure to compact the fill properly has led to settlement, which will probably continue for several years after completion. The house and pool have been built on the fill and have settled with it and cracked. Leakage from the cracked pool and the applied surface loads from the fill have combined to cause landslides.

Retaining walls - have been avoided, to minimise cost, and hand placed rock walls used instead. Without applying engineering design principles, the walls have failed to provide the required support to the ground and have failed, creating a very dangerous situation.

A heavy, rigid, house - has been built on shallow, conventional, footings. Not only has the brickwork cracked because of the resulting ground movements, but it has also become involved in a man-made landslide.

Soak-away drainage - has been used for sewage and surface water run-off from roofs and pavements. This water soaks into the ground and raises the water table (GeoGuide LR5). Subsoil drains that run along the contours should be avoided for the same reason. If felt necessary, subsoil drains should run steeply downhill in a chevron, or herring bone, pattern. This may conflict with the requirements for effluent and surface water disposal (GeoGuide LR9) and if so, you will need to seek professional advice.

Rock debris - from landslides higher up on the slope seems likely to pass through the site. Such locations are often referred to by geotechnical practitioners as "debris flow paths". Rock is normally even denser than ordinary fill, so even quite modest boulders are likely to weigh many tonnes and do a lot of damage once they start to roll. Boulders have been known to travel hundreds of metres downhill leaving behind a trail of destruction.

Vegetation - has been completely cleared, leading to a possible rise in the water table and increased landslide risk (GeoGuide LR5).

DON'T CUT CORNERS ON HILLSIDE SITES - OBTAIN ADVICE FROM A GEOTECHNICAL PRACTITIONER

More information relevant to your particular situation may be found in other Australian GeoGuides:

- GeoGuide LR1 - Introduction
- GeoGuide LR2 - Landslides
- GeoGuide LR3 - Landslides in Soil
- GeoGuide LR4 - Landslides in Rock
- GeoGuide LR5 - Water & Drainage
- GeoGuide LR6 - Retaining Walls
- GeoGuide LR7 - Landslide Risk
- GeoGuide LR9 - Effluent & Surface Water Disposal
- GeoGuide LR10 - Coastal Landslides
- GeoGuide LR11 - Record Keeping

The Australian GeoGuides (LR series) are a set of publications intended for property owners; local councils; planning authorities; developers; insurers; lawyers and, in fact, anyone who lives with, or has an interest in, a natural or engineered slope, a cutting, or an excavation. They are intended to help you understand why slopes and retaining structures can be a hazard and what can be done with appropriate professional advice and local council approval (if required) to remove, reduce, or minimise the risk they represent. The GeoGuides have been prepared by the Australian Geomechanics Society, a specialist technical society within Engineers Australia, the national peak body for all engineering disciplines in Australia, whose members are professional geotechnical engineers and engineering geologists with a particular interest in ground engineering. The GeoGuides have been funded under the Australian governments' National Disaster Mitigation Program.

Appendix D

Geotechnical Declaration

FORM	A	Geotechnical Declaration and Verification Development Application
Office Use Only		Colac Otway SHIRE

To be submitted with planning application. It must accompany the Geotechnical Assessment and/or Landslip Risk Assessment. This form is essential to verify that the Geotechnical Assessment and/or Landslip Risk Assessment has been prepared in accordance with Cl 44.01 of the Colac Otway Planning Scheme and that the author of the Assessment/s is a geotechnical engineer or engineering geologist as defined by this clause.

Section 1	Related Application
Planning Application Number (if known)	
Site Address	Lot 3 No 3935 Great Ocean Road Johanna Vic 3238
Applicant	Anchor Homes

Section 2	Geotechnical Assessment and /or Landslip Risk Assessment	
Details	*Report Title:* 116009 SSA Lot 3 No 3935 Great Ocean Road Johanna Vic 3238	
	Author's Company/ Organisation Name: Intrax	*Report Reference No:* 116009- V1
	Author: Scott Emmett	*Dated:* 29.03.2019

Section 3		Checklist
Geotechnical Requirements (Tick as appropriate either Yes or No)		**The following checklist covers the minimum requirements to be addressed in a Geotechnical Assessment and/or Landslip Risk Assessment. The report must also cover any additional matters required by Clause 44.01. This checklist must accompany each report. Each item is to be cross-referenced to the section or page of the Geotechnical Assessment and/or Landslip Risk Assessment which addresses that item.**
☒ Yes	☐ No	A review of readily available history of slope instability in the site or related land as per < >
☒ Yes	☐ No	An assessment of the risk posed by all reasonably identifiable geotechnical hazards as per < >
☒ Yes	☐ No	Plans and sections of the site and related land as per < >
☒ Yes	☐ No	Presentation of a geological model as per < >
☒ Yes	☐ No	Photographs and/or drawings of the site as per < >
☒ Yes	☐ No	A conclusion as to whether the site is suitable for the development proposed to be carried out either conditionally or unconditionally as per < >
☐ Yes	☐ No	If any items above are ticked No, an explanation is to be included in the report to justify why < >
		Is the approval subject to recommendations and conditions relevant to:
☒ Yes	☐ No	Selection and construction of footing systems.
☒ Yes	☐ No	Earthworks.
☒ Yes	☐ No	Surface and sub surface drainage.
☒ Yes	☐ No	Recommendations for the selection of structural systems consistent with the geotechnical assessment of the risk.
☒ Yes	☐ No	Any conditions that may be required for the ongoing mitigation and maintenance of the site and the proposal from a geotechnical viewpoint.
☒ Yes	☐ No	Highlighting and detailing the inspection regime to provide the <PCA> and builder with adequate notification for all necessary inspections.
_____ Years		State the Design Life of the Structure adopted in the Geotechnical Assessment and/or the Landslip Risk Assessment.
☒ Yes	☐ No	Are the risk mitigation measures as recommended in the Geotechnical Assessment and/or the Landslip Risk Assessment suitable for the design life of the structure?
NOTE:		<Add Reference> - Add in the relevant section or page number of the listed Geotechnical Assessment and/or Landslip Risk Assessment which addresses each item

FORM	A	Geotechnical Declaration and Verification Development Application

Section 4 List of Drawings referenced in Geotechnical Assessment and/or Landslip Risk Assessment

Design Documents	Description	Plan or Document No.	Revision or Version No.	Date	Author
	Anchor Homes	N/A	PD-F	24.01.2019	AK

Section 5 Declaration

Declaration (Tick all that apply)		
		I am a geotechnical engineer or engineering geologist as defined by the Colac Otway Planning Scheme and on behalf of the company below:
☒ Yes	☐ No	I am aware that the Geotechnical Assessment and/or Landslip Risk Assessment I have either prepared or am technically verifying (referenced above) is to be submitted in support of a planning application for the proposed development site (referenced above) and its findings will be relied upon by the Colac Otway Shire Council in determining the planning application
☒ Yes	☐ N/A	I prepared the Geotechnical Assessment and/or Landslip Risk Assessment referenced above in accordance with the Colac Otway Planning Scheme and the AGS Guidelines 2007 as defined in the planning scheme.
☒ Yes	☐ N/A	I technically verify that the Geotechnical Assessment and/or Landslip Risk Assessment referenced above has been prepared in accordance with the Colac Otway Planning Scheme and the AGS Guidelines 2007 as appropriate.
☒ Yes	☐ No	I technically verify that the Geotechnical Assessment prepared for the planning application for the site confirms the land can meet the acceptable risk criteria specified in the schedule to Clause 44.01 of the Colac Otway Planning Scheme taking into account the total development and site disturbance proposed.
☒ Yes	☐ No ☐ N/A	I technically verify that the Landslip Risk Assessment prepared for the planning application for the site confirms the land can meet the tolerable risk criteria specified in the schedule to Clause 44.01 of the Colac Otway Planning Scheme taking into account the total development and site disturbance proposed.

Section 6 Geotechnical Engineer or Engineering Geologist Details

Company/ Organisation Name	Intrax Consulting Engineers	
Name (Company Representative)	Surname: Emmett	Dr / Mr / Mrs / Ms / Miss
	Given Name(s) Christopher Scott	
	Chartered Professional Status	Registration Number 5289(MAIG)
Signature	Scott Emmett	Dated: 29 / 3 / 2019

Reference: AGS Guidelines 2007c *"Practice Note Guidelines for Landslide Risk Management"*, Australian Geomechanics Society, Australian Geomechanics. V42. N1 March 2007.

Note: N/A = Not Applicable

Colac Otway
SHIRE

'Naturally Progressive'

INDIGENOUS SPECIES LIST FOR LAVERS HILL/JOHANNA

Botanical Name	Common name	Height width	Soil class	Erosion control	Comments
Acacia genistifolia	Spreading Wattle	1-3x 1-3m	CSL		**B. B/F. S/G**. Open spreading form. Wet/dry sites. Fast growing. Narrow prickly leaves. Lemon flowers Aut-Spr. **16,45,48.**
Acacia melanoxylon	Blackwood	8-20x 5-12m	CSL	●	**B, B/F, S/G**. Prefers deep damp soils. Screen plant. Pale creamy flowers July-Oct. 18, 30,201, widespread coloniser.
Acacia mucronata var. *longifolia*	Narrow leaf Wattle	2-6x 2-5m	SL		**B/F S/G**. Screen plant. Drought resistant. Narrow leaf. Yellow flower spikes Aug-Oct. **45**
Acacia suaveolens	Sweet Wattle	1-2x 2-5m	SL		**B. B/F. S/G**. Slender spreading shrub, grey foliage. Fast grow. Cream perfumed flowers. Apr-Oct. Coast scrub.
Aotus ericoides	Common Aotus	.5-1.5x .5-1.5m	CSL		**B/F**. Fast grow. bushy heath like. Tolerates wet/dry periods. Clusters small yellow & red pea flowers. Aug-Dec. **16,48.**
Arachnorchis australis	Southern Spider orchid	20cm	CSL		Well drained sites. Single green, hairy leaf. Stem hairy green/red. Single flower creamy yellow red streaks. Sept-Nov.
Asplenium bulbiferum ssp. gracillimum	Mother Spleenwort	.5-1.2x 1m	L		Hardy small tufted fern. Dark green fronds narrow triangular. Grows on trunks. Sheltered, semi shade/shade. **18, 30,31.**
Austalina pusilla ssp. Muelleri	Shade Nettle	20-40cm	CS		Spreading prostrate.No stinging hairs. Shade essential **18, 30**
Bauera rubioides	Wiry Bauera	1-2x 1-2m	SL		Dense wiry stemmed can climb. Compact sun. Straggly shade. Suit damp sites. Pink open flowers Oct-Jan. **8,16,48.**
Bedfordia arborescens	Blanket Leaf	3-7mx 2-4m	CSL		Grey rough bark. Long tangled hairs on stems. Leaves shiny green upper, wooly white under. Shade, damp sites. Bright yellow flowers. Nov-Jan. **30.**

SOILS:
C= clay S = sandy L=Loamy

B = Birds B/F = Butterflies
H/E = Honeyeaters F = Frog S/G = Sugar gliders

EVC = Ecological Vegetation Class 18, riparian forest. 30 wet riparian forest, 45 shrubby foothill forest. 161 coast headland scrub, 201 shrubby wet forest

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Planning Report for Construction of a Single Dwelling
3935 Great Ocean Road Johanna 3238

INTRODUCTION

Anchor Homes has been engaged by Ben Hoodless and Penny Heard, owners of the property, to prepare this Planning submission in support of an Application for Planning Permit for use and development of a dwelling and also creation of access to a road in a Road Zone, Category 1.

Based on the following we believe this proposal will substantially comply with the relevant planning provisions to which the development is subjected. It is understood that it is not necessary to achieve full compliance with the relevant planning provisions given the minor nature of the variations and the overall design outcome.

This report is written in support of the proposed development and having due regard to the relevant provisions of the Planning and Environment Act, State Planning Policy, Municipal Strategic Statement, and the Decision guidelines and purpose and objectives of applicable zones.

SUBJECT SITE

3935 Great Ocean Road Johanna is an irregular shaped property of approximately 76 hectares (188 acres) with Ford River frontage to the north-east. It is well maintained with improved pasture divided into four paddocks with water from two dams. With approximately 25 acres of pine trees and around 40 acres of natural bush on the property excellent shelter is available on site for both stock and/or wildlife. The property is situated 50 minutes from Colac, 40 minutes from Apollo Bay and 10 minutes from Lavers Hill.

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Great Ocean Road

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SURROUNDING LOCALITY

Johanna is a small farming settlement stretching along the Victoria's southern coast between Glenaire and Lavers Hill. It boasts magnificent pasture, where rolling hills and lush rain forest meet at the Southern Ocean. The notable surf beach at Johanna is also a popular fishing spot for salmon. This small locality, west of Cape Otway has a distinctive coastal and rural feel.

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THE PROPOSAL

The proposal is to develop and use the site for a dwelling, and acquire permission for an access to a road in a Road Zone, Category 1.

The proposed new dwelling is a very modest single storey home of less than 200 square metres. It is a modular design that will be manufactured at our facility in Stratford to well past lock up stage. It will then be transported by truck and installed on site where final works and connections to services will take place in view of an Occupancy Permit and handover to the owners.

The owners also propose to have a shed built on the property. The construction of the shed will be undertaken by others (not Anchor Homes).

BACKGROUND

The subject land is one of three lots created by subdivision PS330301U in October 1994. Existing access to the property is a long way from the proposed house siting and over rugged and hilly terrain. Regional Roads Victoria have agreed for an additional access from Great Ocean Road and copies of an email trail setting this out are included with this submission.

PLANNING CONTROLS

The subject property is affected by the following:

Farming Zone

Farming Zone allows a dwelling as a Section 1 use 'as of right' as long as the lot is at least 40 hectares. This property is 76.12 hectares so no planning requirement is triggered by the zone. Also, the boundary setbacks in our application are will within those set out in the Schedule to the Farming Zone.

Clause 35.07-2 mandates that a lot within this zone that is used for a dwelling must meet the following requirements:

- Access to the dwelling must be provided via an all-weather road with dimensions adequate to accommodate emergency vehicles.

As shown on the Site Plan and detailed above, a new all-weather drive is proposed from Great Ocean Road at a point agreed on with Regional Roads Victoria. Dimensions of this drive will be adequate to accommodate emergency vehicles:

~ Having a load limit of at least 15 tonnes.
~ Providing a minimum trafficable width of 3.5 metres.
~ Being clear of encroachments for at least 0.5 metres on each side and at least 4 metres vertically.
~ Curves having a minimum inner radius of 10 metres.

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- ~ The average grade being no more than 1 in 7 (14.4%) (8.1°) with a maximum grade of no more than 1 in 5 (20%) (11.3°) for no more than 50 metres.
- ~ Dips having no more than a 1 in 8 (12.5 per cent) (7.1 degrees) entry and exit angle.

- The dwelling must be connected to a reticulated sewerage system or if not available, the waste water must be treated and retained on-site in accordance with the State Environment Protection Policy (Waters of Victoria) under the *Environment Protection Act 1970.*

A Land Capability Assessment Report provided by Intrax Consulting Engineers recommends an AWTS System or similar is used to apply secondary treated wastewater to a subsurface drip irrigation land application area. The irrigation lines are to be installed a minimum of 100mm into the good quality LOAM soils. To design the application area; the proposed 3-bedroom dwelling is assumed to produce a wastewater loading of 480 L/day as per AS1547:2012 due to onsite Tank Water being used; and a DIR of 3.5mm/day will be adopted for the limiting silty clay LOAM soil layer.

- The dwelling must be connected to a reticulated potable water supply or have an alternative potable water supply with adequate storage for domestic use as well as for firefighting purposes.

A potable water supply will be obtained from rainwater tank(s) with a storage capacity of 110,000L utilising rainwater harvested from the roof(s) of the proposed dwelling and shed. This storage capacity is well in excess of usual domestic requirements providing sufficient for firefighting purposes.

- The dwelling must be connected to a reticulated electricity supply or have an alternative energy source.

Reticulated electricity is supplied to the site by Powercor.

Bushfire Management Overlay

A Bushfire Management Statement has been prepared by Fireguard Australia – bushfire consultants – and identifies best practices to ensure bushfire risk is mitigated to an acceptable level.

The dwelling is to be constructed to a Bushfire Attack Level of 29, with defendable space to be provided for a distance of 49 metres to the south and east and 15 metres to the north and west around the building. Defendable space will be managed as per the following:

- ~ Grass must be short cropped and maintained during the declared fire danger period.
- ~ All leaves and vegetation debris must be removed at regular intervals during the declared fire danger period.
- ~ Within ten metres of a building, flammable objects must not be located close to the vulnerable parts of the building.
- ~ Plants greater than ten centimetres in height must not be placed within three metres of a window or glass feature of the building.
- ~ Shrubs must not be located under the canopy of trees.
- ~ Individual and clumps of shrubs must not exceed five square metres in area and must be separated by at least five metres.
- ~ Trees must not overhang or touch any elements of the building.
- ~ The canopy of trees must be separated by at least 5 metres.

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~ There must be a clearance of at least two metres between the lowest tree branches and ground level.

A water supply with an effective capacity of 10,000L dedicated solely for firefighting will be provided on site and within four metres of the accessway to the property. This will be an above ground tank of non-flammable material, fixed with pipes, fittings and signage compliant with details set out in Cl 52.47 and by the CFA.

As mentioned earlier, the existing access to the property is far from the proposed house siting and across steep terrain - neither of which characteristics comply with bushfire mitigation legislation. However, Regional Roads Victoria have agreed to another access point from Great Ocean Road to the property and this new entry as well as being safe from a traffic perspective, is also more acceptable for fire truck access. The new access will be design and constructed to meet the following requirements:

- All-weather construction.
- A load limit of at least 15 tonnes.
- Provide a minimum trafficable width of 3.5 metres.
- Be clear of encroachments for at least 0.5 metres on each side and at least 4 metres vertically.
- Curves will have a minimum inner radius of 10 metres.
- The average grade will be no more than 1 in 7 (14.4%) (8.1°) with a maximum grade of no more than 1 in 5 (20%) (11.3°) for no more than 50 metres.
- Dips will have no more than a 1 in 8 (12.5 per cent) (7.1 degrees) entry and exit angle.
- It will incorporate a turning circle for firefighting vehicles close to the building with a minimum radius of eight metres.

With the implementation of the above safeguards the proposed new dwelling will be protected against potential bushfire hazards and the risk mitigated to an acceptable level so as to allow Council to support this submission.

Erosion Management Overlay and Schedule 1

The Shire contains areas which are susceptible to landslip, including land throughout the Otway Ranges. All land included in the Erosion Management Overlay has been identified as having a sufficiently high risk of potential instability to justify specific review of these risks prior to the construction of buildings, commencement of works and the removal of vegetation.

The key purpose of the Erosion Management Overlay is '*To protect areas prone to erosion, landslip or other land degradation processes, by minimising land disturbance and inappropriate development.'*

Within the Colac Otway Planning Scheme, the Erosion Management Overlay is implemented at a local level using Schedule 1 to the overlay. The objectives of Schedule 1 include:

- To manage the risk of landslip.
- To ensure that development can be carried out in a manner which will not adversely increase the landslip risk to life or property affecting the subject land or adjoining or nearby land.

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- To ensure that development is not carried out unless the risk associated with the development is a Tolerable Risk or lower.
- To ensure that applications for development are supported by adequate investigation and documentation of geotechnical and related structural matters.
- To ensure that development is only carried out if identified geotechnical and related structural engineering risks to life and property are effectively addressed.

The provisions in Schedule 1 to the Erosion Management Overlay provide a two-level assessment process:

- Geotechnical Assessment (initial level). A primary purpose of the Geotechnical Assessment is the collection of base information about the site.
- Landslip Risk Assessment (second more detailed level). This is a full risk assessment in accordance with the requirements of the AGS2007 guidelines, and includes an assessment for risks for all reasonably identified geotechnical hazards including for risks to life and risk to property/infrastructure.

Following their in-depth investigation, both the Geotechnical Assessment and Landslip Risk Assessment have been reported by Intrax Consulting Engineers and are included in this submission.

Their investigations and reports included:

- Site Investigation in accordance with Australian Geomechanics Society – Landslide Risk Management Guidelines March 2007.
- Site Walk over and Hazard Identification.
- Three (3) boreholes at a maximum depth of 1.8 m.
- Landslide Risk Assessment in accordance with the protocols set out in AGS – LRM.
- Landslide Risk Management recommendations
- Recommendations on footing, slab designs and earth retaining walls.
- Geotechnical design parameters for foundations and or retaining wall systems where required.
- Comment on any other geotechnical issues related to the projects involving this type of work.

By adopting recommendations contained in these reports for the proposed development, identified risk hazard likelihood is reduced to an acceptable risk criterion of 'LOW'. Thus, proving the proposed building and works can be carried out in such a way that the possibility of landslip affecting the site or adjoining or nearby land will not increase to an unacceptable level.

No vegetation removal is required for the proposed development and accordingly not addressed in this submission.

Effluent disposal considerations have been carefully and responsibly investigated by a qualified Geologist. The geological report forms part of the Report by Intrax Consulting Engineers that is included with this submission. Section 6 of the Report sets out in detail results from site and soil assessments, includes mitigation required to deal with the site and soil constraints and provides recommendations to ensure effluent disposal complies with, or exceeds, all Environment Protection Authority standards for on-site disposal in unsewered areas.

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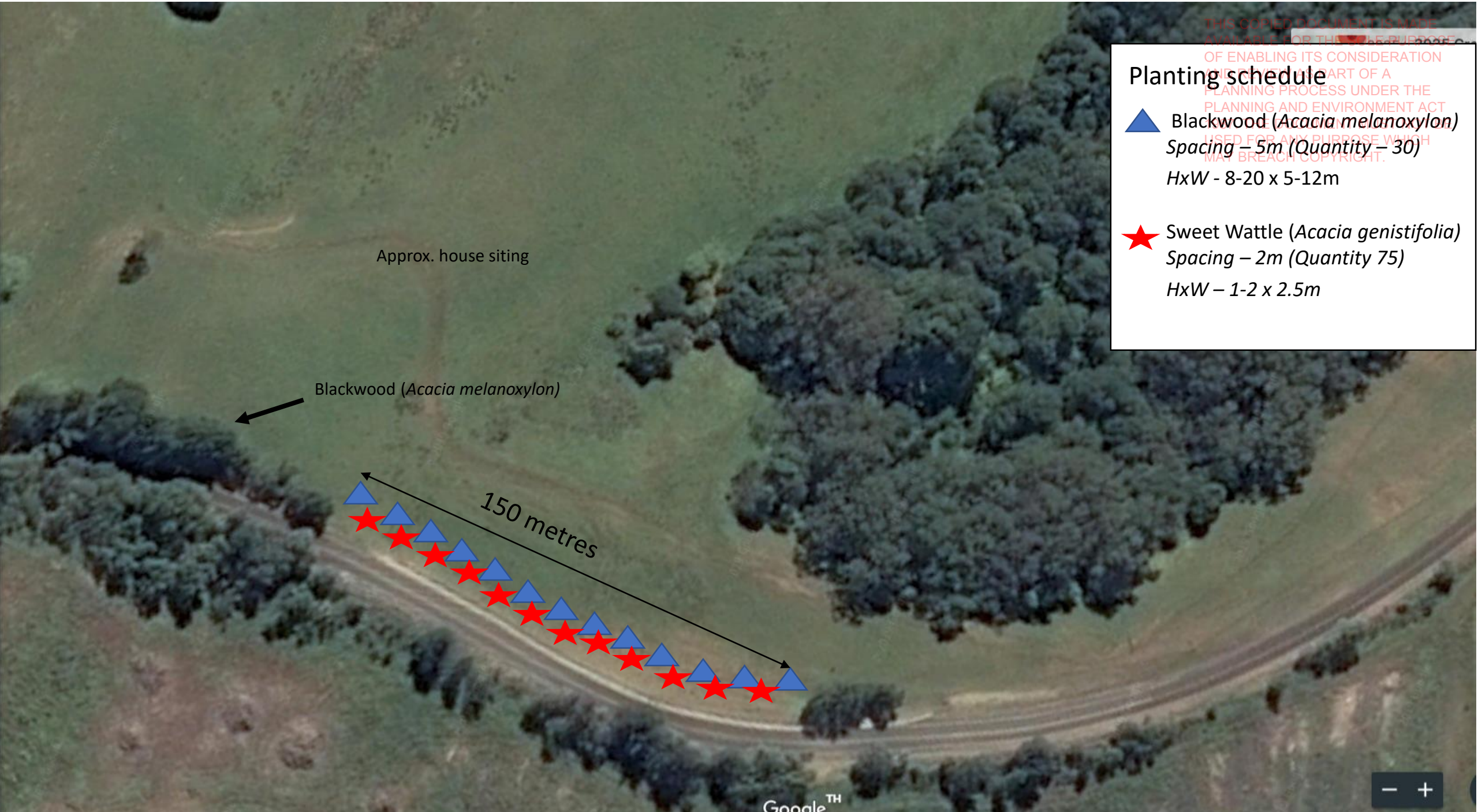
A review of the purpose, objectives and decision guidelines of the Erosion Management Overlay and Schedule 1, together with the appropriate responses provided above and attached, lead us to conclude that potential risks have been prudently investigated and fitting measures proposed to reduce such risks to an acceptable, or better level and that Council can fully support the proposed development.

SUMMARY

For the above reasons, we conclude that the proposed development responds well to the planning constraints existing and that it is suitable for Council to grant permission as requested and issue Planning Permission for the new dwelling and shed.



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Request for Information Response

PP17/2019 – 3935 Great Ocean Road Johanna

INTRODUCTION

We continue to act on behalf of the property owners, Ben Hoodless and Penny Heard, and provide the following information in response to you request for further information dated 19 February 2019

RESPONSE

Clause 35.07 Farming Zone

1. *Please note the permit requirement under the zone in relation to a building within 100 metres from a waterway, wetlands or designated flood plain and the minimum setback from a road (100 metres). A planning permit is triggered for the dwelling in relation to the proximity to the nearest waterway and for the shed in relation to the setback from the RDZ1. In light of this, please provide a response to the 'design and siting issues' under 35.07-6 to the Farming Zone.*

The proposed shed has now been re-sited to more than 100 metres from the road. The proposed dwelling has always been more than 100 metres from the road.

While the siting of the proposed dwelling appears less than 100 metres from a 'waterway', we advise that the said 'waterway' is a dry gully that only contains water for brief periods after heavy rainfall.

We also note that the proposed effluent field is well in excess of the required 30 metre offset from a waterway. The proposed offset is 49 metres.

This property consists entirely of rolling hills with very steep slopes, and due consideration has been given to the siting of the proposed dwelling. The position was chosen as it is a relatively flat area near to where the old road used to be. The aspect has been chosen to maximise sun and warmth.

The dwelling is proposed to be in an area which will not place any adverse impacts on surrounding agricultural uses.

The impact of the siting, design, height, bulk, colours, materials to be used, etc on the natural environment, major roads and vistas will be minimal, due mainly to the proposed plantings along the property boundary with Great Ocean Road.

The proposed new vegetation will reduce the impact of the new dwelling on the character and appearance of the area, in particular the natural scenic beauty and importance of the nationally significant Great Ocean Road Region landscape.

Choosing external colours and finishes of muted, subdued and non-reflective tones will also minimise the visual appearance of the dwelling and shed on the area. We have noted with interest the extent to which a neighbouring existing dwelling stands out in the landscape. The said dwelling is very light coloured – appears white – and stands over against the design and siting decision guidelines contained in the Farming Zone and with which this project endeavours to comply.

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Landscaping – Design and siting

2. *The siting of the proposed dwelling and shed would lead these buildings to be open to exposed views from the Great Ocean Road to the south western side. Consideration should be given to the provision of landscaping, in compliance with the Bushfire Management Plan, to assist with softening and screening the built form from the road. Council's website under 'My Property', 'Environment Management' and 'Trees and Vegetation' provides species list for landscaping with native vegetation. A landscaping plan should include a planting schedule of all proposed trees, shrubs and ground covers, including botanical names, common names, sizes at maturity, and quantities of each plant.*

The siting of the proposed dwelling and shed has been covered in the above paragraph. However, to avoid these buildings being open to exposed views from the Great Ocean Road to the south western side, our clients have agreed to provide plantings along this length of their boundary with Great Ocean Road.

A concept planting schedule is included with this response and provides for screening along that boundary. Plants have been chosen according to Council's 'Indigenous Species List for Lavers Hill/Johanna' – see attached.

Landscaping around the dwelling and shed will be kept to a minimum to maximise the agricultural potential of the site.

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Use of Shed

3. *Please clarify the use of the proposed shed and whether this is intended to be used for agricultural purposes or rather as an outbuilding associated with the proposed dwelling.*
4. *Please provide a materials and colour schedule for the proposed shed*.

The proposed shed is for agricultural use – storage of machinery etc and will be the same finish and colour as the house – chosen from a range of muted, subdued and non-reflective tones. The owners will harvest rainwater from this shed as well as their dwelling for their potable water and firefighting water supplies.

Clause 52.29 – Creation of Access to RDZ1

5. *Under the above provision, a planning permit is required to create or alter an access onto a road in a Road Zone, Category 1. Please confirm that the application preamble can include 'creation of access to a road in a Road Zone, Category 1. Under this provision this application will be referred to Regional Roads Victoria.*

We confirm that the application preamble can include 'creation of access to a road in a Road Zone, Category 1. Our amended Application Form and Planning Report are included with this response.

Erosion Management Overlay (EMO1)

6. *The content of the Geotechnical Site Investigation report by Intrax reference 116009 is noted. It would appear that the content of this report does not meet the information requirements as set out within paragraph 6.0 contained within the Schedule 1 to this overlay. In particular, the report must include a statement indicating that the risks for all slope instability hazards identified, are of an acceptable risk level (as defined above) and will remain at an acceptable risk level over the design life of the development such that a Landslip Risk Assessment (as described in the following section) is not required. A revised report is required to be provided to specifically address the requirements of this overlay.*

7. *The submitted Form A references plans PD-E dated 30.10.2018. The application plans submitted under PP17/2019 are revision F dated 24/01/2019. Please provide an updated Form A to include the plans for consideration under this application.*

The content of the Geotechnical Site Investigation report by Intrax reference 1126009 has been revised and we believe the information requirements as set out within paragraph 6.0 contained within the Schedule 1 to this overlay are now satisfied.

The Form A has been revised and corrected and reflects the latest drawing revision PD-F.